No Disclosures
NIH Funding for New and Young Investigator

David A. Lathrop, PhD
Division of Cardiovascular Sciences
National Heart, Lung, and Blood Institute
LathropD@nhlbi.nih.gov

Early Career: Navigating the Road to a Successful Career in Cardiovascular Research
AHA BCVS Council Session
November 2011
Outline

Policy
  - NIH
  - NHLBI
Grant Mechanisms
Questions
Frequently Asked Questions

NIH New and Early Stage Investigator (ESI) Policies

Initial Posting: January 12, 2009
Last Revised: September 27, 2011

I. General Issues

1. How does NIH describe a New Investigator?
2. How does NIH describe an Early Stage Investigator (ESI)?
3. What is the implication/significance of ESI versus NI? Since ESI is a subgroup of NI, what is the purpose of ESI?
4. If I am an NI or ESI, how do I ensure that NIH recognizes me as such?
5. How does NIH recognize New Investigators?
6. How does NIH recognize ESIs?
7. Who has the ability in the electronic system to update NI or ESI status?
8. Is verification of degree completion date required and accomplished via a third party?
9. How do I get an eRA Commons account?
10. Which grant opportunities are available to ESIs?
11. How can institutions assist NIH in its commitment to ESIs?
12. Are there other special initiatives or programs for scientists just beginning their independent careers?
13. I am a New Investigator/Early Stage Investigator (ESI), but this designation does not appear when I view the grant folder in the NIH Commons. How can I correct the information?
A **New Investigator** is an NIH research grant applicant who has **not yet competed successfully** for a substantial, NIH research grant.

A Program Director/ Principal Investigator (PD/PI) who has previously received a competing NIH R01 research grant is no longer considered a New Investigator.

However, a PD/PI who has received a small grant (R03) or an Exploratory, Developmental Research Grant Award (R21) retains his or her status as a New Investigator. For a complete list of NIH grants that do not disqualify a PD/PI from being considered a New Investigator, visit: [http://grants.nih.gov/grants/new_investigators/resources.htm](http://grants.nih.gov/grants/new_investigators/resources.htm).
An **ESI**, or **Early Stage Investigator**, is a **New Investigator** who has completed his or her terminal research degree or medical residency—whichever date is later—within the past 10 years and has not yet been awarded a substantial, competing NIH research grant.

The dates that start the period of classification as an Early Stage investigator are entered in the investigators eRA Commons Profile ([https://commons.era.nih.gov/commons/](https://commons.era.nih.gov/commons/)).

Under certain circumstances an extension to the ESI period may be granted.
Which grant opportunities are available to ESIs?

In general, all grant opportunities are open to New and Early Stage investigators. All NIH Funding Opportunity Announcements (FOAs) are listed at http://grants.nih.gov.

Note, however, that ESI status will be considered only on applications for traditional research grants (R01s) and the NIH Directors New Innovator Awards (DP2s).

Only ESIs may apply for DP2s.
Commitment to Early Stage Investigators

National Heart, Lung, and Blood Institute
Fiscal Year 2012
November 3, 2011

BACKGROUND. The NHLBI is committed to identifying and attracting new independent biomedical researchers to study health-related areas that fall within the mission of the Institute and to support them in achieving their career goals. Entry of investigators in the early stages of their career into the ranks of independent, NIH-funded researchers is essential to the continued long-term health of the nation’s biomedical research enterprise. The NHLBI provides special consideration to Early Stage Investigators (ESIs) in funding priority and period of support for new competing (Type 1) regular research project grants (R01) and first renewal (Type 2) R01 applications.

New unamended applications submitted by New Investigators (NIs) who do not qualify as ESIs are not eligible for special funding status.

NIH DEFINITION. A principal investigator (PI) is considered an NI if he/she has not previously competed successfully as a PI for a significant NIH independent research award regardless of his/her current status (i.e., as a co-investigator or lead PI on NIH R01 or R03 grants for example).
Specifically, a PI is identified as an **NI** or an **ESI** if he/she has not previously competed successfully for an NIH-supported research project, **other than the following early stage or small research grants**, or the indicated training, infrastructure, and career awards:

- Pathway to Independence Award-Research Phase (R00)
- Small Grant (R03)
- Academic Research Enhancement Award (R15)
- Exploratory/Developmental Grant (R21)
- Research Education Grants (R25, R90, RL9, RL5)
- Clinical Trial Planning Grant (R34)
- Dissertation Award (R36)
- Small Business Technology Transfer Grant-Phase I (R41)
- Small Business Innovation Research Grant-Phase I (R43)
- Shannon Award (R55)
- NIH High Priority, Short-Term Project Award (R56)
- Competitive Research Pilot Projects (SC2, SC3)

[http://www.nhlbi.nih.gov/funding/training/redbook/newinvest.htm](http://www.nhlbi.nih.gov/funding/training/redbook/newinvest.htm)
NHLBI helps ESIs by maintaining separate paylines for new competing (Type 1) R01 and First Renewal (Type 2) applications. The paylines for new competing (Type 1) and First Renewal (Type 2) ESI R01 applications will be 5 percentile points above the regular FY2012 R01 paylines.

In addition, new competing (Type 1) ESI R01 applications that are >5 but <=10 percentile points above the regular R01 paylines in FY 2012 may undergo an expedited program review to resolve comments in the summary statement.

The funding policies will apply to all new competing (Type 1) and First Renewal (Type 2) ESI R01 applications under special funding consideration regardless of the amendment status of the application. All awards to ESI applicants under this policy will be funded for all years recommended by the NHLBAC.

http://www.nhlbi.nih.gov/funding/training/redbook/newinvest.htm
For an **ESI** to be considered for NHLBI priority funding for the first competitive renewal (Type 2) of his/her R01, all of the criteria below must be met:

- the individual **cannot** be a principal investigator on an Independent Scientist and/or other **non-mentored** career award or on another R01 or a sub-project director on a multi-project award, and

- the individual **must** be currently holding a position at a domestic institution with a faculty rank up to and including an Associate Professor or equivalent.

http://www.nhlbi.nih.gov/funding/training/redbook/newinvest.htm
Paylines in percentile or priority score:

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>Percentile</th>
<th>Priority Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>10.0</td>
<td></td>
<td>Research Project Grant</td>
</tr>
<tr>
<td>ESI</td>
<td>20.0</td>
<td></td>
<td>Early Stage Investigator</td>
</tr>
</tbody>
</table>
The NIH R01

http://grants.nih.gov/grants/funding/r01.htm
NHLBI will no longer accept investigator-initiated R21 applications.

NHLBI will not accept new unamended R21 applications in response to the Parent R21 FOA for the Cycle III due dates (October 16, 2011 or January 7, 2012 for AIDS applications) or any date thereafter.

NHLBI will accept resubmission (amended/A1) R21 applications through Cycle I, 2012 (March 16, 2012 or May 7, 2012 for AIDS applications).

Starting with Cycle II, 2012 and thereafter, NHLBI will not accept any R21 applications in response to the NIH Exploratory Development Research Grant Program (Parent R21).
What should I do if I cannot submit an R21?
What CSR Study Section should I direct my application to?
Read descriptions of CSR Study Sections

- e.g., Cardiovascular and Respiratory Sciences IRG [CVRS]
  http://public.csr.nih.gov/StudySections/IntegratedReviewGroups

Use NIH RePORTER to see what was successful in any CSR Study Section

- http://projectreporter.nih.gov/reporter.cfm
How to choose a CSR study section?
Example – find/read study section description

Cardiovascular and Respiratory Sciences IRG [CVRS]

The Cardiovascular and Respiratory Sciences [CVRS] IRG will consider research applications that employ basic investigations, translational approaches and patient-oriented studies to focus on the development, physiology, and pathophysiology of the cardiac and pulmonary systems. Cardiac study sections are organized around themes of cardiac development, muscle contraction including cardiac hypertrophy and failure, cardiovascular electrophysiology and arrhythmias, myocardial ischemia and metabolism and include a study section devoted to clinical investigation. Respiratory study sections focus on inflammation and immune dysfunctions in the lung, lung injury, repair and remodeling, and the integrative biology and control mechanisms of the lung and its related organs and tissues. Investigators may employ a range of approaches that include genetics, genomics and proteomics, molecular, cell, and computational biology, biochemistry, biophysics and bioengineering, imaging, analyses of model organisms, and human studies.

Study Sections

» Cardiac Contractility, Hypertrophy, and Failure Study Section [CCHF]
» Cardiovascular Differentiation and Development Study Section [CDD]
» Clinical and Integrative Cardiovascular Sciences Study Section [CICS]
» Electrical Signaling, Ion Transport, and Arrhythmias Study Section [ESTA]
» Lung Cellular, Molecular, And Immunobiology Study Section [LCMI]
» Lung Injury, Repair, and Remodeling Study Section [LIRR]
» Myocardial Ischemia and Metabolism Study Section [MIM]
» Respiratory Integrative Biology and Translational Research Study Section [RIBT]
How to choose a CSR study section?
Example – find/read study section description

Electrical Signaling, Ion Transport, and Arrhythmias Study Section [ESTA]

The Electrical Signaling, Ion Transport and Arrhythmias study section reviews both basic and clinical applications concerned with cardiac and vascular electrical and mechanical activity, excitation-contraction coupling, electrophysiological aspects of normal and abnormal cardiovascular function, arrhythmias and sudden death. Studies involve humans and animals, in vitro and in vivo systems, molecular, genetic, electrophysiological, biochemical, biophysical, bioengineering, and computational approaches. Emphasis is on ion transfer and transport mechanisms affecting cardiac rhythm disorders, impulse propagation, and cardiac and vascular smooth muscle contractility in hypertrophy, heart failure, ischemia, hypertension, congenital heart disease, and heart transplant.

Topics

- Excitability, electrical propagation and repolarization in normal and diseased hearts, structure function of cardiac and vascular ion channels, ion exchangers, ion pump, connexins, excitation-contraction coupling proteins, basis of propagation, conduction system, and intercellular communication.
- Mediators and modulators of cardiac contractility, calcium homeostasis, calcium regulation, calcium sensitive proteins, neural regulation, redox regulation, genes and proteins that modulate cardiac excitability and contractility, regulation of ion channel function and expression.
- Cellular mechanisms of arrhythmogenesis, identification of genes and proteins, electrophysiological consequences of acquired heart diseases (e.g. ischemia, hypertension, heart failure, hypertrophy etc.).
- Computational techniques to predict arrhythmias, mathematical modeling of ion channels, myocytes, multi-cellular tissue and the whole heart, development and evaluation of interventions and devices to diagnose and treat cardiac rhythm disorders.

Policy Changes

- New Dates for New Investigator A1 R01 Applications Submitted for Standard Dates
- Delays in Grant Application Submission due to Natural Disasters – September 2011
- Reminder on NIH Application Format and Content Instructions
- Reference Letters for Career Development (K) Applications
- More …

FAQ's

- For Applicants
- For Reviewers
- More …

Closely Related
How to choose a CSR study section?
Example – check NIH RePORTER
How to choose a CSR study section?
Example – check NIH RePORTER

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Sub #</th>
<th>Project Title</th>
<th>Contact PI/Project Leader</th>
<th>Organization</th>
<th>FY</th>
<th>Admin IC</th>
<th>Funding IC</th>
<th>FY Total Cost by IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2R01HL074654-05</td>
<td>2</td>
<td>PHOSPHOENOLPYRUVATE CARBOXYLASE</td>
<td>CHEUNG JOSHDH</td>
<td>THOMAS JEFFERSON UNIVERSITY</td>
<td>2011</td>
<td>NHLBI</td>
<td>NHLBI</td>
<td>$387,313</td>
</tr>
<tr>
<td>1R01HL104025-01A1</td>
<td>2</td>
<td>NA CHANNEL MRNA SPlicing IN HEART FAILURE</td>
<td>DUDLEY SAMUEL C</td>
<td>UNIVERSITY OF ILLINOIS AT CHICAGO</td>
<td>2011</td>
<td>NHLBI</td>
<td>NHLBI</td>
<td>$397,560</td>
</tr>
<tr>
<td>1R01HL102040-01A1</td>
<td>2</td>
<td>NOVEL THERAPEUTIC APPROACHES TO ATRESHALIZATION TARGETING MITOCAROLAR CALCI</td>
<td>MARKS ANDREW ROBERT</td>
<td>COLUMBIA UNIVERSITY HEALTH SCIENCE</td>
<td>2011</td>
<td>NHLBI</td>
<td>NHLBI</td>
<td>$403,147</td>
</tr>
<tr>
<td>1R01HL093942-01A2</td>
<td>2</td>
<td>CARDIAC DYSTROPHY: CELLULAR MECHANISMS</td>
<td>SHIROKOVA NATALIY</td>
<td>UNIV OF MEDICN OF NJ-NJ MEDICAL SCHOOL</td>
<td>2011</td>
<td>NHLBI</td>
<td>NHLBI</td>
<td>$345,000</td>
</tr>
<tr>
<td>2R01HL076900-09</td>
<td>2</td>
<td>CA2+ SIGNALING MECHANISMS IN CARDIAC FIBROSIS</td>
<td>YUE LIXA</td>
<td>UNIVERSITY OF CONNECTCUT SCH OF MEDICNT</td>
<td>2011</td>
<td>NHLBI</td>
<td>NHLBI</td>
<td>$300,732</td>
</tr>
</tbody>
</table>
2012 NIH Director's New Innovator Award Program (DP2)


<table>
<thead>
<tr>
<th>Department of Health and Human Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1. Overview Information</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participating Organization(s)</th>
<th>National Institutes of Health</th>
</tr>
</thead>
</table>

| Components of Participating Organizations | Common Fund (Funding) This FOA is developed as an NIH Common Fund Initiative [http://commonfund.nih.gov/], through the Office of Strategic Coordination, Division of Program Coordination, Planning and Strategic Initiatives. Office of the NIH Director (OD), Office of Extramural Research, all NIH Institutes and Centers participate in Common Fund initiatives. This FOA is being administered by the National Institute of General Medical Sciences (NIGMS) on behalf of NIH. |

<table>
<thead>
<tr>
<th>Funding Opportunity Title</th>
<th>2012 NIH Director’s New Innovator Award Program (DP2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Code</td>
<td>DP2 NIH Director's New Innovator Awards</td>
</tr>
<tr>
<td>Announcement Type</td>
<td>Reissue of RFA-RM-10-002</td>
</tr>
<tr>
<td>Related Notices</td>
<td>- August 10, 2011 - See Notice NOT-RM-11-002. The purpose of this Notice is to highlight the following addition to the eligibility criteria for individuals applying to the 2012 NIH Director’s New Innovator Award Program:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding Opportunity Announcement (FOA) Number</th>
<th>RFA-RM-11-005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Companion FOA</td>
<td>None</td>
</tr>
<tr>
<td>Number of Applications</td>
<td>See Section 3.3 Additional Information on Eligibility</td>
</tr>
<tr>
<td>Catalog of Federal Domestic Assistance (CFDA) Number(s)</td>
<td>83.393</td>
</tr>
<tr>
<td>FOA Purpose</td>
<td>The NIH Director's New Innovator (DP2) Award program was created in 2007 to support a small number of early stage investigators of exceptional creativity who propose bold and highly innovative new research approaches that have the potential to produce a major impact on broad, important problems in biomedical and behavioral research. The New Innovator Awards complement ongoing efforts by NIH and its Institutes and Centers to fund early stage investigators through R01 grants, which continue to be the major sources of NIH support for early stage investigators. The NIH Director's New Innovator Award Program is a High-Risk Research Initiative of the Common Fund</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Dates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Posted Date</td>
<td>August 10, 2011</td>
</tr>
<tr>
<td>Open Date (Earliest Submission Date)</td>
<td>September 14, 2011</td>
</tr>
<tr>
<td>Letter of Intent Due Date</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Application Due Date(s)</td>
<td>October 14, 2011, by 5:00 PM local time of applicant organization</td>
</tr>
<tr>
<td>AIDS Application Due Date(s)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Scientific Merit Review</td>
<td>April 2012</td>
</tr>
</tbody>
</table>

[Image: National Heart, Lung, and Blood Institute]
What is the NIH Director’s New Innovator Award (DP2)?

The NIH Director's New Innovator Award addresses two important goals: stimulating highly innovative research that has the potential for significant impact, and supporting promising early stage investigators.

The NIH Director's New Innovator Award supports a small group of exceptionally creative early stage investigators who propose bold new approaches that have the potential to produce a major impact on a broad area of biomedical or behavioral research.

This award complements ongoing efforts by NIH and its institutes and centers to fund new and early stage investigators through R01 grants and other mechanisms, which continue to be the major sources of support for new and early stage investigators.
FY2011 DP2 Awards

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Sub #</th>
<th>Project Title</th>
<th>Contact PI / Project Leader</th>
<th>Organization</th>
<th>FY</th>
<th>Admin IC</th>
<th>Funding IC</th>
<th>FY Total Cost by IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1DP200031520-01</td>
<td>01</td>
<td>CHARACTERIZATION OF THE FETAL PRIVATE EPIGENOME AND METABOLOME UNDER IN UTERO</td>
<td>AAGAARD-TILLERY, KIERSTI MARIE</td>
<td>BAYLOR COLLEGE OF MEDICINE</td>
<td>2007</td>
<td>GD</td>
<td>GD</td>
<td>$2,302,500</td>
</tr>
<tr>
<td>1DP200037383-01</td>
<td>01</td>
<td>REAL-TIME STEREOTACTIC MASS SPECTROMETRY TISSUE ANALYSIS FOR INTRAOPERATIVE NEURO</td>
<td>AGAR, NATHALIE YR</td>
<td>BRIGHAM AND WOMENS HOSPITAL</td>
<td>2010</td>
<td>DD</td>
<td>GD</td>
<td>$2,675,875</td>
</tr>
<tr>
<td>1DP200037251-01</td>
<td>01</td>
<td>OPTOELECTRONIC NANOWIRE PRObes FOR INVESTIGATION OF INTRACELLULAR PROCESSES</td>
<td>AGARWAL, RITESH</td>
<td>UNIVERSITY OF PENNSYLVANIA</td>
<td>2010</td>
<td>DD</td>
<td>GC</td>
<td>$2,400,000</td>
</tr>
<tr>
<td>1DP200036652-01</td>
<td>01</td>
<td>THE OlfACTORY NEURAL CIRCUIT AS A SYSTEMS LEVEL MODEL OF NEURODEGENERATIVE DISEAS</td>
<td>ALBERS, MARK V</td>
<td>MASSACHUSETTS GENERAL HOSPITAL</td>
<td>2009</td>
<td>DD</td>
<td>GC</td>
<td>$2,252,250</td>
</tr>
<tr>
<td>1DP200038951-01</td>
<td>01</td>
<td>STREAMLINED STRUCTURES OF HUMAN INTEGRAL MEMBRANE PROTEINS AT ATOMIC RESOLUTION</td>
<td>ALLER, STEPHEN G</td>
<td>UNIVERSITY OF ALABAMA AT BRIMINGHAM</td>
<td>2011</td>
<td>DD</td>
<td>GD</td>
<td>$2,197,500</td>
</tr>
<tr>
<td>1DP200036499-01</td>
<td>01</td>
<td>CHEMICALLY AMPLIFIED RESPONSE STRATEGIES FOR MEDICAL SCIENCES:</td>
<td>ALMUTAIRI, ADAM</td>
<td>UNIVERSITY OF CALIFORNIA SAN DIEGO</td>
<td>2009</td>
<td>DD</td>
<td>GD</td>
<td>$2,317,500</td>
</tr>
</tbody>
</table>
More General Information

National Heart, Lung, and Blood Institute

http://www.nhlbi.nih.gov

NIH

http://www.nih.gov
  - All about NIH

NIH Office of Extramural Research

http://grants.nih.gov
  - Policies and funding opportunities
  - Resources for new investigators
NHLBI Training Programs

Training and Careers

Training and Career Development

- Available Research Training and Career Development Programs at NHLBI
- National Research Service Award Institutional Research Training Grants (T32)
- eMentoring Initiative
- Continuing Education

Research Training and Career Development Programs of the NHLBI

- Available Research Training and Career Development Programs
  - High School Students
  - Undergraduate Students
  - Preclinical Students
  - Postdoctoral Individuals
  - Postdoctoral Individuals/New Independent Researchers
  - Established Researchers

- Research Supplements to Promote Diversity in Health-Related Research — Guidelines for the Applicant
- Suggested Formats for Required Data for Short-Term Research Education Program to Increase Diversity in Health-Related Research (K25)
- Research Career Development Programs in Vascular Medicine (K12s)

- Summer Institute for Training in Biostatistics (T15)
- Summer Institute Program to Increase Diversity in Health-Related Research (SIPiD)

- Commitment to New Investigators
- Establishing a Research Career: Possible Scenarios
- Training and Career Development Slide Set

- NHLBI Training Opportunities on the NIH Campus

http://www.nhlbi.nih.gov/training/index.htm
# Spectrum of Research Training & Career Development Awards

<table>
<thead>
<tr>
<th>Graduate &amp; Medical School</th>
<th>Postgraduate Research Training Fellowships</th>
<th>Transition to Established Investigator</th>
<th>Established Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>T32 Predoctoral Institutional award</td>
<td>F32 Individual award</td>
<td>K08</td>
<td>F33</td>
</tr>
<tr>
<td>T32 Predoctoral Minority Institutional award</td>
<td>T32 Institutional award</td>
<td>K23</td>
<td>K24</td>
</tr>
<tr>
<td>F30 MD/PhD</td>
<td>T32 Minority Institutional award</td>
<td>K25</td>
<td>K25</td>
</tr>
<tr>
<td>F31 Minority students &amp; individuals with disabilities</td>
<td></td>
<td>K02</td>
<td></td>
</tr>
<tr>
<td>T35/R25 Short-term training institutional award for minority students</td>
<td></td>
<td>K01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K99/R00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K12 Programs</td>
<td></td>
</tr>
</tbody>
</table>
# Postdoctoral & Early Career Research Training

<table>
<thead>
<tr>
<th>Post Graduate Research Training Fellowships</th>
<th>Transition to Established Investigator: Fellow to Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Length 2-3 years</td>
<td>Program Length 3-5 years</td>
</tr>
<tr>
<td>T32 Institutional Awards</td>
<td>Individual Awards</td>
</tr>
<tr>
<td>T32 Minority Institution Award</td>
<td>K01, K02</td>
</tr>
<tr>
<td>F32 Individual award</td>
<td>K08, K23</td>
</tr>
<tr>
<td></td>
<td>K99/R00</td>
</tr>
<tr>
<td></td>
<td>K12 Program (RFA)</td>
</tr>
<tr>
<td></td>
<td>Institutional Award</td>
</tr>
</tbody>
</table>
More Training Information

Office of Research Training & Career Development, NHLBI, DCVS

Jane Scott, ScD, MSN
Drew Carlson, PhD
Mark Roltsch, PhD
Tawanna Meadows, BS

301-435-0535
David A. Lathrop, PhD  
Chief, Heart Failure & Arrhythmia Branch  
Program in Adult and Pediatric Cardiac Research  
Division of Cardiovascular Sciences  
National Heart, Lung, and Blood Institute  

301-435-0504 (Office)  
301-793-4519 (Mobile)  
Email DAL@NIH.gov
NHLBI: People… Science… Health
Recipe for a Research Career

- Perseverance
- Good mentor(s)
- Great ideas
- *Luck* (Serendipity)
- Money
Study Section

• Each application is assigned to individual reviewers based on their expertise
• Assigned reviewers read the application and report back to the study section
• All reviewers score the application
• After the scores for scientific merit are recorded, the reviewers discuss budget and duration
Reviewer complaints:

- Lack of new or original ideas
- Diffuse, superficial or unfocused research plan
- Lack of knowledge of published relevant work
- Lack of experience in the essential methodology
- Uncertainty concerning the future directions
- Questionable reasoning in experimental approach
- Absence of acceptable scientific rationale
- Unrealistically large amount of work
- Lack of sufficient experimental detail
- Uncritical approach
Reviewer advice:

- Propose something significant
- Good ideas don’t always sell themselves
- Make it exciting
- Probe for mechanisms and seek new models
- Avoid proposing to “collect more data”
- Be very clear
- Be brief with stuff everyone knows
- Don’t assume too much
Reviewer advice:

- Aim each aim
- Pull it together
- Don’t jump too fast into writing the application
- Don’t test the waters
- Don’t cram your application like a suitcase
- Proofread your application
- Be persistent
Research Training & Career Development Goal

- Train the next generation of research scientists
- Create competitive & successful researchers
- Ensure new training programs for new scientific domains (computational biology, imaging researchers)
- Support development of new disciplines
- Support and expand research training activities in minority populations
- There is an ongoing need, irrespective of budget
Create Competitive & Successful Researchers

Capable of

• Scientific independence
• Successfully competing for research funds
• Scientific contributions (research, peer reviewed papers, mentoring new scientists)
• With current budget, NHLBI funding to 10th percentile for R01 grants (large grants, the gold standard)
## Spectrum of Research Training & Career Development Awards

<table>
<thead>
<tr>
<th>Graduate &amp; Medical School</th>
<th>Postgraduate Research Training Fellowships</th>
<th>Transition to Established Investigator</th>
<th>Established Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>T32 Predoctoral Institutional award</td>
<td>F32 Individual award</td>
<td>K08</td>
<td>F33</td>
</tr>
<tr>
<td>T32 Predoctoral Minority Institutional award</td>
<td>T32 Institutional award</td>
<td>K23</td>
<td>K24</td>
</tr>
<tr>
<td>F30 MD/PhD</td>
<td>T32 Minority Institutional award</td>
<td>K25</td>
<td>K25</td>
</tr>
<tr>
<td>F31 Minority students &amp; individuals with disabilities</td>
<td>T32 Minority Institutional award</td>
<td>K02</td>
<td></td>
</tr>
<tr>
<td>T35/R25 Short-term training institutional award for minority students</td>
<td></td>
<td>K01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K99/R00</td>
<td>K12 Programs</td>
</tr>
</tbody>
</table>

- **T32 Predoctoral Institutional award**
- **T32 Predoctoral Minority Institutional award**
- **F30 MD/PhD**
- **F31 Minority students & individuals with disabilities**
- **T35/R25 Short-term training institutional award for minority students**
<table>
<thead>
<tr>
<th>Post Graduate Research Training Fellowships</th>
<th>Transition to Established Investigator: Fellow to Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Length 2-3 years</td>
<td>Program Length 3-5 years</td>
</tr>
<tr>
<td>T32 Institutional Awards</td>
<td>Individual Awards</td>
</tr>
<tr>
<td>T32 Minority Institution Award</td>
<td>K01, K02</td>
</tr>
<tr>
<td>F32 Individual award</td>
<td>K08, K23</td>
</tr>
<tr>
<td></td>
<td>K99/R00</td>
</tr>
<tr>
<td></td>
<td>K12 Program (RFA)</td>
</tr>
<tr>
<td></td>
<td>Institutional Award</td>
</tr>
</tbody>
</table>
T32 Institutional Training Programs

• 2-3 years Predoctoral training
• 2-3 years Postdoctoral training
• Program has a theme or focus
• Program director has history of independent funding, peer reviewed publications, & track record of mentoring
• Cohesive teaching & mentoring faculty
• Faculty need to have independent funding, peer reviewed publications, & mentoring experience
NIH Institutional T32 Training Programs:

• Sponsored by many NIH institutes
• Commitment is 90% effort, 2-3 years
• Provides stipend, tuition, research training, training related expenses, & travel/registration fees
• Long established & successful mechanism
• NHLBI, DCVS 110-120 programs
F32 Individual Postdoctoral Awards

- Individual Fellowship award
- Generally after T32 post-doc training
- 2 years
- Late Postdoc training
- Pre-K99-R00 or Pre K Award
Up to 5 years support, two phases

- Must be a Post-doc fellow at time of application
- Phase I Mentored research 1-2 years (K99)
- Phase II Independent research support (R00) 1-3 years
- Contingent on securing an independent research position
- Each phase provides salary & research costs
NIH Pathway to Independence (PI) Award (K99/R00)

- Applicant must have less than 5 years Postdoc training at time of submission
- Both citizens and non-citizens are eligible to apply
- MDs & PhDs compete for this award
- Highly competitive
- 75% commitment
- Very popular with PhD scientists
K – Individual Early Career Mentored Research Development Awards

- Fellows & early faculty, 3-5 yrs. length
- Provides stipend, tuition, training related expenses, health insurance, & up to 25-50 K/year for research activities
- 75% effort required for K activities (courses, research, career development)
- K08 & K23 awards at NHLBI are targeted to clinician scientists
K Award Elements

- Candidate (capacity to become an independent investigator)
- Mentoring team
- Institutional Support
- Career development plan
- Research plan
- And does the whole program mesh?
Individual K awards

- Trainee applies to NIH/Institute for the award
- Grant is reviewed by a study section
- Must provide strong justification, and mentors must have a history of NIH funding.
Individual Mentored Clinical Scientist Development Award (K08)

- Clinician scientists who are interested in developing independent research careers.
- Bench sciences & population sciences
- Late Post-doc training-early faculty
- 75% effort, for 3-5 years
- Up to $75,000 per year plus benefits
- $25,000 per year for research development support
- Transition to R during K
Mentored Patient-Oriented Research Career Development Award (K23)

- Clinician scientists who are committed to developing careers in patient-oriented research
- Patient-oriented care requires patient interface (see criteria with K23 announcement)
- Late Postdoctoral Fellowship-early faculty
- 75% effort or more, 3-5 years
- Up to $75,000 per year plus benefits
- $25,000-50,000 per year research development support
- Transition to R during K
Independent Scientist Award (K02)

• For starting faculty with limited independent funding & in need of protected time
• 3-5 years
• Salary support only: Up to $75,000 per year plus benefits.
• No other research development support funds
• Great Award…
Ruth L. Kirschstein National Research Service Award (NRSA)

- **Guide to Kirschstein - NRSA Programs**
  - For individuals with or working on a research doctorate
  - For individuals with or working on a health-professional doctorate

- **Institutional Research Training Grants**
  - **T Table** - Listing of ALL NRSA Institutional Training Grant Funding Opportunity Announcements
  - NIH Forms and Applications Page (including PHS 398 and PHS 2590) application and other Training Forms

- **Individual Fellowships**
  - **F Files** - NRSA Fellowship Funding Opportunities
  - NIH Forms and Applications Page (including PHS 416-1 and 416-3) application and other Training Forms
  - **Guidelines for Reviewers** (Links to review guidelines for various fellowship "F" mechanisms)
  - **Revision: Streamlined Review Process to be used for Ruth L. Kirschstein National Research Service Awards (NRSA) Postdoctoral Fellowship Applications (F32)** (08/09/2007)

- **NRSA Policy Issues**
  - NIH-NSF Definition of Postdoctoral Scholar (January 29, 2007 Letter to National Postdoctoral Association) (02/22/2007) - (PDF - 75 KB)
  - **Guidance to Applicant Organizations about Registering Research Fellows in the eRA Commons** (10/5/2005)
  - Questions and Answers Related to NOT-OD-06-093 (09/06/2006)
  - **Revision: Notice of New NIH Policy for Funding of Tuition, Fees, and Health Insurance on Kirschstein-NRSA Awards** (08/16/2006)
  - Summary of NIH Town Hall Meeting on NRSA Tuition Support - November 30, 2005 (MS Word)
  - Final Report of the Task Force on NRSA Tuition - June, 1993
  - Authorizing Legislation for the Ruth L. Kirschstein National Research Service Award Program (RTF - 20 KB) - (42 USC 238)
  - Senate Report Language Associated with the Authorizing Legislation at 42 USC 238 (RTF - 13 KB)
  - Earlier Legislation (link needs to be added)
  - **Federal Regulations for the NRSA Program (42 CFR 66)** - May 31, 2001 (PDF - 71 KB)
  - **NRSA Policy Guidelines** (Including Payback and Reporting Requirements)
RePORT: report.nih.gov
Also see RePorter: A powerful search engine
Started July 1, 2011

Recruiting scholars to start July, 2012
• Relatively young discipline
• # of federally funded emergency medicine investigators remains low, with only 87 federally funded (NIH, CDC, AHRQ) investigators in 2005 (ACEP Research Committee, 2005).
• Barriers include a limited number of NIH trained investigators
• Strong recommendations for research training from NIH Roundtables in EM research
NHLBI K12 Program Goals

- To develop innovative institutional research career developments programs to develop a cadre of independent clinician investigators whose research focuses on EM issues and populations.

- Focus on clinical and translational research. No bench research.

- Focus on multidisciplinary clinical research training in the diagnosis and management of acute, life-threatening cardiovascular, pulmonary, and blood disorders frequently encountered in the ED.
EM K12 programs provide:

- Two-three years of intensive research training:
- Didactic training in clinical research, research ethics, and protection of human subjects
- Research mentors
- Mentored research experience
- Scholar stipends
- Tuition
- Research related expenses
Timeline:

- RFA released July 16, 2010
- Receipt date October 7, 2010
- 28 applications
- Six programs funded
- July 1, 2011 start date- first year to organize program and recruit scholars…
- **Now recruiting scholars to start July, 2012**
NHLBI K12 Programs in EM

• **Mount Sinai Hospital**
  Lynne D. Richardson, MD
  Phone: (212) 824-8066
  e-mail: lynne.richardson@mssm.edu

• **Oregon Health & Science University**
  Robert A. Lowe, MD, MPH & Cynthia D. Morris, PhD, MPH
  Phone: (503) 494-7134
  e-mail: Lowero@ohsu.edu; morrisc@ohsu.edu

• **University of California Davis**
  Nathan Kuppermann, MD, MPH & James Holmes, Jr., MD, MPH
  Phone: (916) 734-5010
  e-mail: nkuppermann@ucdavis.edu; jfholmes@ucdavis.edu
NHLBI K12 Programs in EM

- University of Pennsylvania
  Lance B. Becker, MD & Brian Leslie Strom, MD, MPH
  Phone: (215) 746-3625; e-mail: lance.becker@uphs.upenn.edu; bstrom@exchange.upenn.edu

- University of Pittsburgh at Pittsburgh
  Donald M. Yealy, MD & Clifton W. Callaway, MD, PhD
  Phone: (412) 647-8295 e-mail: yealydm@upmc.edu; callawaycw@upmc.edu

- Vanderbilt University
  Alan B. Storrow MD, PhD & Douglas Sawyer, MD, PhD
  Phone: (615) 936-5934;
e-mail: alan.storrow@vanderbilt.edu;
douglas.b.sawyer@vanderbilt.edu
Office of Research Training & Career Development, NHLBI, DCVS

Jane Scott, ScD, MSN
Drew Carlson, PhD
Mark Roltsch, PhD
Tawanna Meadows, BS

301-435-0535
NIH Resources

• www.nih.gov for Institute Links & Information

• http://report.nih.gov for easy link to RePorter

• http://projectreporter.nih.gov/reporter.cfm
  RePorter (replaces CRISP)

• http://grants.nih.gov/grants/oer.htm
Sometimes the decision to pursue research is decided by debt & student loans...

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

Programs in
- Clinical Research
- Pediatric research
- Health disparities research
- Clinical research for individuals from disadvantaged backgrounds

NIH Loan Repayment Programs
NIH Loan Repayment Programs

- http://www.lrp.nih.gov/
- Up to $35,000 for qualified student loan debt
- Up to two years of support
- Competitive program
- Approximately 40% of applicants are funded
- A great opportunity.....
Individual Awards: K99/R00

―Pathway to Independence Award‖

- Must be a post-doctoral student
- For postdoctoral candidates who have clinical or research doctorates (PhD, MD, etc.)
- No more than 5 years post-doc research training.
- Requires 75% effort, no citizenship requirement
- 2 years K99 mentored research training
- 3 years R00 independent research funding
- Transition to R00 requires research success & obtaining a tenured track faculty position
Individual Training Awards: NHLBI K08

- Mentored Clinician Scientist Development Award (K08)
- For clinician scientists
- Must have a professional license to practice in the US
- For biomedical, behavioral, and population-based research
- 75% effort or more, 3-5 years
- Up to $75,000 salary/year plus benefits
- $25,000/year research development support
- Pays tuition, training related expenses, travel
Individual Training Awards: NHLBI K23

- Mentored Patient-Oriented Research Career Development Award (K23)
- Clinician scientists
- Must include patient-oriented research component
- 75% effort or more, 3-5 years
- Up to $75,000 salary/year plus benefits
- $25,000-50,000/year research development support
- Pays tuition, training related expenses, travel
- Transition to R support
Finding NIH Institutional & Individual Research Training Programs

• Think outside the box
• Use RePorter to search for programs, read abstracts & review published papers
• Talk with former-current mentors, colleagues, fellows & junior faculty
• Talk with individuals trained in an NIH program
• Remember: Lots of options: KL2, T32, K12; K23, K08, K99, and more.
• Talk with Program Officer’s at NIH Institutes
To succeed, get to know NIH:

• Sign up for NIH Guide Listserv: http://grants.nih.gov/grants/guide/listserv.htm

• NHLBI Updates https://subscription.nhlbi.nih.gov/accounts/USNIHNHLBI/subscriber/new

• NIH Office of Extramural Research Listserv: http://nexus.od.nih.gov/all/subscribe
