Cp'Tpxgǔvǐ cvqtu'I wlf g"vq'PKJ 'Hwpf kpi :
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Presented By: Ołej cgrNgügenk, PhD

Provided By:
Principal Investigators Association™

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800-303-0129
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Leslie Norins, M.D., Ph.D.
Founder
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Founder: Leslie C. Norins, MD, PhD

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An Investigator’s Guide to NIH Funding
Breaking Into NIH Funding & Beyond –
A How-To Guide for New and Early Career Investigators

Webinar Series Part 2 of 2

Michael Lesiecki, PhD
PI and Consultant

About the Presenter

- I have had the privilege to be a PI and Reviewer for both NIH and NSF grants since 1989.
- My technical background is chemical physics with a lot of focus on applications of laser technology in science and medicine.

About “An Investigators Guide To NIH Funding” – A Two Part Series

- This series gives the most important factors to consider for those embarking on a research career.
- Part I of this series was designed for post docs, senior graduate students and others who have never been a principal investigator before.
Part I (Continued)

- Introduced the NIH grants programs and gave an overview of the funding opportunities.
- We discussed navigating the NIH Institutes, understanding what a Principal Investigator is and how the agency works ...

Part II (Today):
Breaking into NIH Funding & Beyond

- Focuses on fellowships, training grants and transition awards
- With an emphasis on New and Early Stage Investigators

New Investigator

- New Investigator is “one who has not previously competed successfully as PI for a substantial NIH Independent research award”
Early Stage Investigator

- 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."

- You can see Early is a subset of New.

Information

- The information presented in this webinar is largely taken from publicly available sources.

- This is not about writing grants.

- It is about creating a strategy to support your research and your career.

Key Resources

- New Investigator Guide to NIH Funding
  - This document outlines strategies for gaining an NIH grant and explains basic funding concepts and processes to new and would-be principal investigators.
  - [http://www.niaid.nih.gov/researchfunding/grant/Pages/newpiguide.aspx#new18](http://www.niaid.nih.gov/researchfunding/grant/Pages/newpiguide.aspx#new18)

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

- Strongly Recommended
Today's Five Major Topics:

1. Overviewing relevant NIH programs
2. Examining specific fellowship, training, career transition and pathways to independence opportunities
3. Understanding who is eligible as a new or early stage investigator
4. Identifying sources of guidance of investigators early in their careers
5. Knowing what funding opportunities exist beyond grants

Research Careers: The Path

- Graduate student
- PhD or MD
- Faculty Position or Research Scientist
- Independent PI

NIH Big Picture

NIH's Mission is to create fundamental knowledge about living systems and apply that knowledge to reduce human illness and disability.
**Structure: 27 Institutes and Centers**

Quick Links

- NCI
- NAMS
- NIDHS
- CIT
- NEI
- NIBI
- NIGMS
- CSR
- NHLBI
- NICHD
- NIA
- ITC
- NHGRI
- NIDCD
- NIAID
- NCDC
- NIAID
- NIDCR
- NINDS
- NCATS
- NIAAA
- NIDDK
- NIMH
- CC
- NIAID
- NIDA
- NHL
- OD

[NIH Images: Personalized Medicine and Chronic Diseases](http://www.nih.gov/icd/index.html)

---

**NIH Has Programs**

- **Main types:**
  - R - Research Grants
  - K - Career Development Awards
  - T & F - Research and Training Fellowships

- **Activity codes (214 different ones) are used to distinguish them.**
  - search here, [http://grants.nih.gov/grants/funding/funding_program.htm](http://grants.nih.gov/grants/funding/funding_program.htm)

---

**Career (T & F)**

- T32 Institutional Training Grant
- F31 Minority Pre-Doc
- Pre- and Post-doc
- PhD
- MD
- Faculty or Researcher
- Independent PI
- Grad Student

---
T32 Example

- An Institutional training grant, funded in 2012
- Advanced Graduate Training in Theoretical Neuroscience
- Provide training for predoctoral students in their third through fifth year in the interdisciplinary field of theoretical neuroscience
- $132k for one year
- At Columbia University Health Sciences

Career Fellowship (F-Type)

F32 Individual PostDoc Fellowship

Developing Your Proposal Target

- Identify a program and FOA
- Analyze the FOAs and Program Announcements for eligibility and specific review criteria
- Use RePort to see what is being funded
What Is A Fellowship?

- A training program where the sponsor specifies the individual receiving the award

- Funds
  - Stipend
  - Miscellaneous expenses

- The purpose of a training award is to provide applicant protected time to become independent

F32 Individual Fellowship Example

- AdPLA FUNCTION IN ADIPOSE LIPID METABOLISM
- $49k funded in 2012
- at UC Berkley
- Ruth L. Kirschstein National Research Service Awards (NRSA) for Individual Postdoctoral Fellows (Parent F32)
- Research description in the proposal limited to six pages
More On The F32

- There must be an identified sponsor or mentor

- There are five review criteria
  - Applicant credentials and potential
  - Sponsors, collaborators and consultants
  - Research training plan
  - Training potential
  - Institutional environment and commitment to training

- Open to citizens or non-citizen nationals

Career (K-Type)

NIH Career Development (K) Awards

- Defined as K01, K02, K05, K07, K08, K12, K18, K22, K23, K24, K25, K26, K99, KL1 and KL2 activity codes

source: report.nih.gov/UploadDocs/T204%202011%20-%20Career%20Dev%20succ%20Rate.xls
### K Success Rate (rec'd in 2011)

<table>
<thead>
<tr>
<th>Type</th>
<th>Proposals Rec'd</th>
<th>% Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>K01</td>
<td>441</td>
<td>34.2</td>
</tr>
<tr>
<td>K08</td>
<td>425</td>
<td>41.6</td>
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<tr>
<td>K22</td>
<td>88</td>
<td>29.5</td>
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<tr>
<td>K23</td>
<td>599</td>
<td>33.9</td>
</tr>
<tr>
<td>K24</td>
<td>87</td>
<td>44.8</td>
</tr>
<tr>
<td>K99</td>
<td>832</td>
<td>21.6</td>
</tr>
</tbody>
</table>

### K01 Mentored Career Development

- **VASOREGULATION BY IP3 RECEPTOR COUPLING TO TRPC CHANNELS**
- $117k funded in 2012
- at U of Tenn Health Science Center
- Mentored Career Development Award to Promote Faculty Diversity/Re-Entry in Biomedical Research
- For investigators, from diverse backgrounds or who have experienced an interruption in their research careers
- For non-tenured


### K08 Mentored Career Development

- **REGULATION OF ENERGY BALANCE AFTER GASTRIC BYPASS IN MICE**
- $143k funded in 2012
- at U of Texas SW Med Cntr
- Mentored Clinical Scientist Research Career Development Award
- To support didactic study and mentored research for individuals with clinical doctoral degrees

**K22 Mentored Career Development**

- COMPLICATIONS OF JAW OSTEORADIONECROSIS IN CANCER MANAGEMENT
- $196k funded in 2012
- at University of Penn
- NCI Transition Career Development Award to Promote Diversity
- The unique feature of this award is that the individuals may apply without a sponsoring institution while they are still in a mentored position.


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**K Success Rate**

<table>
<thead>
<tr>
<th>Type</th>
<th>Proposals Rec’d in 2011</th>
<th>% Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>K23</td>
<td>599</td>
<td>33.9</td>
</tr>
</tbody>
</table>

NIH, Light Imaging Section Core Facility

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**K23 Mentored Career Development**

- BRAIN METABOLITES IN TYPE 2 DIABETES AND MAJOR DEPRESSION USING MRS
- $196k funded in 2012
- at University of IL
- Mentored Patient-Oriented Research Career Development Award
- For investigators with potential to develop into productive, clinical investigators focusing on patient-oriented research

MR Spectroscopy

- MR spectroscopy graph shows the different chemical peaks of a suspected brain tumor.

Source: http://www.mayfieldclinic.com/PE-MRSpectroscopy.HTM

Career Pathway (K99)

K99 - Pathway To Independence Award

<table>
<thead>
<tr>
<th>Type</th>
<th>Proposals Rec'd in 2011</th>
<th>% Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>K99</td>
<td>832</td>
<td>21.6</td>
</tr>
</tbody>
</table>
K99 - Pathway to Independence

- EARLY LIFE ENVIRONMENTAL TOXICANT EXPOSURE AND ORAL HEALTH
- $98k funded in 2012
- Harvard School of Public Health
- K99 - Designed to facilitate a timely transition from a mentored postdoctoral research position to a stable independent research position with independent NIH or other independent research support at an earlier stage than is currently the norm

Source: http://projectreporter.nih.gov/project_info_details.cfm?aid=8279327&icde=14404379

K99 - Pathway To Independence

- Provides postdocs with independent funding
- No Citizenship Requirements
- Allows up to 5 years support (two phases)
  - Phase 1: 1-2 years mentored support for postdocs
    - K99
  - Phase 2: Up to 3 years independent support
    - R00
- Must receive independent research position


Questions?

National Eye Institute, NIH Image Bank
A Challenging Transition

- From postdoc trainee to independent investigator
- Designed for new investigators
- K99/R00s are required to commit at least 75% effort, nine months/year

K99 Phase to R00 Phase

- Transition from the mentored phase (intramural NIH or extramural institution) to the extramural independent scientist phase is NOT automatic
- Subject to review of the awardee’s research training/career development accomplishments and an evaluation of the materials (including progress report) submitted in support of the R00 phase application

K99 Career Level

- This award is intended for and limited to postdoctoral scientists who are in mentored training positions and do not have sufficient research experience or institutional authority to lead an independent research program
- Individuals with a full-time tenure track assistant professor position (or equivalent) at the time of application are not eligible.
- Must name a mentor for the K99 phase
- Proposal is much more substantial
A Principal Investigator

- The individual judged by the applicant organization to have the appropriate level of authority and responsibility to direct the project or program supported by the grant.

A New Investigator

- A PI is considered a “New Investigator” if he/she has been the PI on any of the following classes of awards:
  - All Fellowships (F awards)
  - All individual and institutional career awards (K awards)
  - All training grants (T32, T34, T35, T90, D43)
  - Instrumentation, Construction, Education, Health Disparity Endowment Grants, or Meeting Awards

A New Investigator

- A PI is identified as a New Investigator if he/she has not previously competed successfully for an NIH-supported research project other than the following... (abbreviated list)
  - 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)
  - Dissertation Award (R36)
  - Shannon Award (R55)
  - NIH High Priority, Short-Term Project Award (R56)
- Resource Access Award (X01)
Early Stage Investigator (ESI)

- A Program Director/Principal Investigator
  - New Investigator (NI)
  - Within 10 years of completing his/her terminal research degree
  - Within 10 years of completing medical residency (or the equivalent)

ESI Designation

- The ESI designation helps to differentiate between established and early-career investigators, and helps NIH meet the goal of accelerating the transition to an independent scientific career.

- It is expected that ESIs will constitute the majority of funded NIs.

What Programs are open to NIs and ESIs?

- All of them
- Of particular note K99/R00 and
- NIH Director’s New Innovator Award (DP2)
  - created in 2007 to support a small number of early stage investigators of exceptional creativity who propose bold and highly innovative new research approaches
  - may lack sufficient preliminary data for an R01
More Information On DP2

NIH Director’s New Innovator Award Program

2012 New Innovator Award Recipients


Sources of Guidance: Which K Is Right For You?

- Career Award Wizard http://grants.nih.gov/training/kwizard
  
  As a health professional doctorate who needs 3 to 5 years of support for additional supervised career development, please choose from one of the following:

  - You have completed specialty or sub-specialty training and are seeking salary and research support for a full-time supervised career development experience in patient-oriented research.
  - You are seeking salary and research support for a full-time supervised career development experience in areas of health-related research that doesn’t involve patients.

Your Office Of Sponsored Programs

- Often will have specific information on K-Type awards
A Reminder

- Post-docs cannot apply for independent research grants (R01)

Beyond K99

- K99/R00 - Pathway To Independence Award
- F33 Sr. Postdoc Fellowship
- R01 Research Grant

Non-Federal Sources

- Non Federal
  - Professional Societies
  - Foundations
  - Industry

Your development office is a good starting point
Foundation Support

LEUKEMIA & LYMPHOMA SOCIETY®
fighting blood cancers

- Scholar
- Scholar in Clinical Research
- Special Fellow
- Special Fellow in Clinical Research
- Fellow

source: http://www.lls.org/researchers/healthcareprofessionals/academicgrants/careerdevelopment/

Foundation Support (continued)

<table>
<thead>
<tr>
<th>Fellowship Type</th>
<th>Requirements</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postdoctoral Fellowships</td>
<td>MD, DPhy, DVM, PhD, or equivalent and must not be simultaneously serving an internship or residency</td>
<td>$44,764 to $80,000</td>
</tr>
<tr>
<td>Advanced Postdoctoral Fellowship</td>
<td>MD, DPhy, DVM, PhD, or equivalent and must not be simultaneously serving an internship or residency</td>
<td>Up to $80,000</td>
</tr>
<tr>
<td>Career Development Awards</td>
<td>MD, DPhy, DVM, PhD, or equivalent and faculty position or equivalent</td>
<td>$60,000</td>
</tr>
<tr>
<td>Early-Career Patient-Oriented Diabetes Research Awards</td>
<td>MD or PhD, hold an appointment or junior appointment in a subspecialty of clinical medicine, and conduct human clinical research</td>
<td>$150,000</td>
</tr>
</tbody>
</table>

source: http://www.jdrf.org/index.cfm?page_id=113811

Are You Ready for Independent Support?

- Advanced degree
- Your position allows it
- Have a publication record in the field for which you are applying
- Have equipment, resources and lab space
- Utilize the fellowship, training and career transition award opportunities
Hatch a Plan For Your Career Compliance?

- Great Advice from the NIH
  [Link](http://www.niaid.nih.gov/researchfunding/grant/strategy/pages/2picktopic.aspx#a)

NIH Image, Hair cell of amphibian inner ear
Photo credit: A.J. Hudspeth, M.D, Ph.D.

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**Pathways**

<table>
<thead>
<tr>
<th>Grad Student</th>
<th>PhD</th>
<th>MD</th>
<th>Faculty or Researcher</th>
<th>Independent PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>T32 Institutional Training Grant</td>
<td>F32 Individual PostDoc Fellowship</td>
<td>F31 Minority Pre-Doc</td>
<td>K - Research Scholar Development Award</td>
<td>R01 Research Grant</td>
</tr>
</tbody>
</table>

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**Use an Iterative Process**
Information in the Research Plan works in a feedback loop with other parts of your application.

1. Stay in your niche, propose a project that:
   - Addresses a highly significant problem.
   - Is innovative—can create new knowledge.

2. Outline specific aims and one or more hypotheses.

3. Identify a potential funding source and a study section that would likely embrace your research.

4. Outline experiments.

5. Assess feasibility.
   - See whether you have access to all needed resources and expertise.
   - Make sure the project is not growing too big for your targeted time and budget.

6. If you hit a roadblock, go back to the failure point and revise your plan.
**Summary: A Research Career**

- Has many pathways
- All ultimately lead to some form of independence
- The discipline of constructing a proposal gives you a critical skill as you go forward

---

**Today We:**

1. Overviewed relevant NIH programs
2. Examined specific fellowship, training, career transition and pathways to independence opportunities
3. Understood who is eligible as a new or early stage investigator
4. Identified sources of guidance of investigators early in their careers
5. Discovered what funding opportunities exist beyond grants

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**Questions?**
NIH Short Form: Answers to 16 Frequently Asked Questions

When NIH instituted the new short form grant application in January 2010, the agency provided little guidance regarding how to tackle the various sections of this instrument. Nonetheless, Principal Investigators have to use the form to obtain funding from the agency.

Listed inside this complimentary white paper are 16 frequently asked questions directly from PIs just like you. And the answers have been provided by grant-winning experts with advice they have gleaned from years in the award-seeking trenches and serving as NIH reviewers!

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This unique manual coaches you to optimally prepare your NIH R01 grant application, one section at a time!

The R01 Grant Application Manual is an independent resource of expert analysis, plus color-coded exact copies of NIH words when they are especially helpful. But our authors also restated key points in more clear language where they felt the government writers strayed into “grey areas” or even bureaucratese. Plus, we’ve supplied actual language from funded grants to show how other PIs have handled challenging zones to help jump start your own proposal.

Section 1: Preparation: What Every PI Should Know Before You Start Applying
Section 2: Successfully Use Your Biosketch and Abstract to Define Your Project & Your Qualifications
Section 3: Prove Your Environment Supports Your Research
Section 4: Research Plan: Make the Most of Your Significance, Innovation, Approach & Overall Impact
Section 5: Special Considerations for Research Involving Human, Animals, or Select Agents
Section 6: Modular and Detailed Budget Strategies That Support Your Proposal
Section 7: Tactics for Submitting a Winning Proposal
Section 8: Understand NIH’s Review Process and Your Role in It

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Web: www.principalinvestigators.org/r01manual

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PIs rank time management as one of their top concerns inside and outside the lab, and they agree that this skill is critical to their success. With this Time Management Toolkit for Scientists, you gain an instant resource, packed with time management how-to advice and best practices you can implement right away. Conquer the time wasters that are slowing you down and make every minute count. Plus! You can train your entire team for one low rate. Order today!

This Toolkit includes 5 must-have informational products that will help you overcome your toughest time management challenges:

1. Special Report: Making Every Minute Count: How PIs Can Fit 28 Hours Into a 24 Hour Day ($197 value): This special report includes more than 45 pages of expert tips to gain control over your day. Available in PDF or Print.

2. Special Report: Research Lab Management Challenges and Solutions ($199 value): Lab management challenges can come in many forms. As a PI, identifying potential problems in your lab early on is only half the battle. Available in PDF or Print.

3. Reference Card: 50 Time Management Tactics for PIs ($49 value): Find time to get through those pesky tasks and get back in the lab to do what you do best! Available in PDF or Print.

4. 60-Minute On-Demand Webinar: Making Every Minute Count: How to Fit 28 Hours into a 24-Hour Day! ($197 value): Learn the valuable methods and tips to gaining control over your day from a time management expert. Choose from 3 formats: CD, MP4 or PDF transcript.

5. 60-Minute On-Demand Webinar: The Art of Delegating: Creating a More Productive Laboratory Environment ($197 value): In this insightful webinar, you'll learn the key to successful delegation. Choose from 3 formats: CD, MP4 or PDF transcript.  

Click here to learn more out this toolkit!

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