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Best Regards,
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This transcript is endorsed as a valuable tool for continuing professional development by Principal Investigators Association.

Founder: Leslie C. Norins, MD, PhD

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An Investigator’s Guide to NIH Funding
Deciphering NIH Funding for Beginners

Webinar Series Part 1 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 “Deciphering NIH Funding for Beginners” - A Two Part Series

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

- This is an introduction to the NIH grants program and an overview of the funding opportunities.
- Navigating the NIH Institutes, understanding what a Principal Investigator is and how the agency works...

Part II: Breaking into NIH Funding & Beyond

- Focuses on New and Early Stage Investigators

New and Early Stage (Part II)

- New Investigator is "one who has not previously competed successfully as PI ..."
- 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."
Information

- The information presented in this webinar is largely taken from publicly available sources.
- This is not about writing a grant.
- It is about creating a new grant strategy to support your research and your career.

A Key Resource

- **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)
- **Strongly Recommended**

Today’s Five Major Topics:

1. Understanding the NIH as a funding agency: what it does and does not do.
2. Understanding who is eligible for what funding in what type of programs, and gaining an awareness of how funding decisions are made.
3. What you need to know and be able to do as a Principal Investigator for the first time.
4. Dealing with the sponsored research office at your institution.
5. Developing a career and research strategy as a young investigator.
How Does A Research Career Start?

- Degree
- Post Doc, Super-Post Doc, Research Professor, Tenure Track Faculty
- Industry, Research Scientist, Senior Scientist, Group Leader

Research Careers

- At some point you become the Investigator and
- Your success will depend in part on your ability to attract funding for your work and ideas
- How does this happen?
  - hint, it is not in a book

National Institutes of Health

- What is the structure?
- What does it do and not do
- Where do you fit?
NIH Big Picture

- NIH's mission is to create fundamental knowledge about living systems and apply that knowledge to reduce human illness and disability
- NIH funds most grants by the scientific quality of the applications it receives rather than by pre-defined, high-priority areas of science

True or False?

- NIH funds people and their careers.
  - Largely False
    - by the way, institutions are the grantees
Institutions Are The Grantees

Investigator

Research Institution (ASU BioDesign)

NIH

Structure: 27 Institutes and Centers

Quick Links

NIH Images: Personalized Medicine and Chronic Diseases


The research projects supported by the National Eye Institute (NEI) address the leading causes of blindness and impaired vision in the United States. The NEI supports a broad range of basic and clinical research, clinical trials and other epidemiologic studies, and research training and career development in the sciences related to vision.

Center for Information Technology

- Advance scientific, technical, and engineering progress through innovative solutions in the areas of
  - biomedical informatics, genomics, structural biology, image analysis, computational methods and
  - algorithms, parallel computing, biomedical instrumentation, molecular modeling, knowledge
  - management, and mathematical and statistical analysis.
- The Center is an I&IT service provider

NIH Has Programs

- Main types:
  - Research Grants (P series)
  - Career Development Awards (K series)
  - Research Training and Fellowships (T & F series)
  - Program Project/Center Grants (P series)
  - Resource Grants (various series)
  - Trans-NIH Programs
  - Inactive Programs (Archive)

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

Research Grants

- Most Common: R01

  NIH Research Project Grant Program (R01)
  - Used to support a discrete, specified, circumscribed research project
  - NIH's most commonly used grant program
  - No specific dollar limit unless specified in FOA
  - Advance permission required for $500K or more (direct costs) in any year
  - Generally awarded for 3 - 5 years
  - All ICs utilize
  - See parent FOA: PA-11-260
NIH Research Project Grant Program

The R01

http://grants.nih.gov/grants/funding/r01.htm

- The original and historically oldest grant mechanism used by NIH.
- Provides support for health-related research and development based on the mission of the NIH.
- R01s can be investigator-initiated or can be in response to a program announcement or request for application.

R01 Resources

- Sample Applications and summary statements

True or False?

- New investigators have a hard time getting funded
True or False?

- New investigators have a hard time getting funded
  - True

Sobering Data

The FOA

- Funding Opportunity Announcement
- This is an announcement in [www.grants.gov](http://www.grants.gov) of a federal grant opportunity
  - [http://twitter.com/NIHforFunding](http://twitter.com/NIHforFunding)
Proposal Target

- You will identify a program and FOA
- Take the FOAs and Program Announcements to bed for night time reading
- How does what you want to do align with what you want to do?
- See who funds research in your field
  - pick a journal paper and see who supports it

Dynamic and Quantitative Analysis of Choroidal Neovascularization by Fluorescein Angiography

Footnotes

GDN is a recipient of a K23 Clinician Scientist Training Award from the NEI.

RePort

- An extremely useful site
Your Sponsored Research Office

- It is never too early to establish a connection with your Office.
- They can help you navigate possible grant opportunities.
- They can help manage the administrative complexities of a grant once awarded.

Poll Question: Audience

The most important audience for your proposal is:

A. Your Sponsored Research Office  ✓
B. The peer review group for the proposal
C. The Institute staff
D. Your elected representative

Audience

The most important audience for your proposal is:

A. Your Sponsored Research Office
  ✓ The peer review group for the proposal
B. The Institute staff
C. Your elected representative
The NIH Receives About 80,000 Proposals Per Year

http://public.csr.nih.gov/aboutcsr/Pages/default.aspx

How are decisions made?

Core Review Criteria

- Significance
- Investigator
- Innovation
- Approach
- Environment

- When these are all considered an overall score is assigned

Peer Review Process

- Peer review revealed:
  http://public.csr.nih.gov/ApplicantResources/Pages/default.aspx

- Proposal is assigned to a special study section and Institute or Center

- Ranked on the five major review criteria and scored 1 (best) to 9 (worst)
A Question For You

What percent of NIH grants get funded?

A. 10%  
B. 20%  
C. 25%  
D. 30%

Paylines

The small funding hit rate forces you to think strategically.

- Can you submit a proposal to more than one place?
- How can you be successful if you first need to be successful?

True or False?

I am going to need a faculty position and my own lab before I can try for an R01?

✓ Largely True
What Funding Do You Qualify For?

- First, your institution must qualify
  - Universities, business, state and local governments and foreign institutions

- Second, do you qualify?
  - Any individual with the skills, knowledge and resources to carry out the proposed research is invited to work with their institution to apply for support.

The Project Must Qualify

- Meets the NIH Mission
- Is unique
- Complies with federal policies
- Complies with other requirements or policies specific to the FOA you choose

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

- New and early stage investigator status can help
As A Principal Investigator

- You are responsible for the management and integrity of the design, conduct, and reporting of the research project and
- You are responsible for the direction and oversight of compliance, financial, personnel and other related aspects of the research project and
- You are responsible for coordination with school, department, and central administration personnel to assure research is conducted in accordance with Federal regulations and University and sponsoring agency policies and procedures.

Source: http://research.wustl.edu/Resources/Roles/Pages/PI.aspx

Not Yet Ready for Independence

- Join someone else’s grant
- Apply for a training or career award
  - this will be covered in more detail in Part 2 of this webinar series.
  - likely to require citizenship or residence status

Development Time?

I should plan on spending ____ of dedicated time to preparing an R01 type of proposal:

A. one month
B. two months
C. three months
Waiting Time?

From receipt to award of your proposal can take up to:

A. 6 months
B. 8 months
C. 12 months
D. 20 months

Hatch a Plan For Your Career Compliance?

Great Advice from the NIH

http://www.niaid.nih.gov/researchfunding/grant/strategy/green/2/picktopic.aspx

Transition Approach

K22 Awards: “Transition”

- Institute specific: National Cancer Institute for example
- Facilitate the transition of investigators in mentored, non-independent cancer research positions to independent faculty cancer research positions.
- This goal is achieved by providing protected time through salary and research support for the initial 3 years of the first independent tenure-track faculty position, or its equivalent.

Research Scientist and Research Professor Options

- Typically post-postdoc experience
- No direct involvement in teaching
- Non-tenure track
- Soft money

Here is one school’s policy:
http://research.umich.edu/policies/research-faculty/appointments-and-promotions/
It Isn’t Too Soon To Develop Your Own Ideas

- You don’t have to wait until you get an appointment here
- Connect with people who know your work
- They will talk to you

Options: NIH

- Approximately 10 percent of the NIH budget supports NIH intramural investigators, NIH staff who conduct research.
- "Intramural"

Source: http://www.jobs.nih.gov/default.htm
Principal Investigator at NIEHS

Jerei Yakel studies the neural circuits that underlie learning and memory.

Source: http://irp.nih.gov/our-research/research-in-action/plastic-brains

The Private Sector

Know and follow your institution’s policy - no way around it.

At the Controls of a DaVinci Robot, NIH Image

Opportunities for Industry-Academic Collaboration

Dye-enhanced diode laser photo-choroidal neovascularizations

Ulrich Klingbeil, Carmen A. Puliafito, Dan McCarthy

Univ. of Southern California, USA

Carmen A. Puliafito, Elias Reichel
New England Eye Ctr./Tufts Univ. School of Medicine (USA)

Dan McCarthy
Ocuion Corp. (USA)

Joseph Ota
The Retina Consultants (USA)

Michael L. Lesinski
Genentech, USA
Summary: A Research Career

- Has many options
- Today no one career choice closes any other options
- The discipline of constructing a proposal gives you a critical skill as you go forward

NIH Clinical Center, NIAMS
Arthritis and Rheumatism Branch, Molecular Inflammation Section

Today We:

1. Reviewed the NIH as a funding agency: what it does and does not do
2. Discussed eligibility and gained an awareness of how funding decisions are made
3. Described expectations for a principal investigator
4. Connected with the sponsored research office at your institution
5. Explored possibilities for developing a career and research strategy as a young investigator

Questions?

Biomechanical Modeling, NSF/Sung-Hee Lee, Efthimios Sifakis and Demetri Terzopoulos, University of California, Los Angeles
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!

Download your FREE copy today!

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The 2012 Comprehensive Guide to Preparing a Superior R01 Grant Proposal

Make the best possible case to encourage the NIH to support your cause! The NIH R01 Grant Application Mentor: An Educational How-to Manual offers a wealth of information for both novice and seasoned grant writers. This 2012 edition continues to be the definitive resource on R01 grant proposals available today. It includes:

- **299 pages** — 8 unique sections, each covering an important facet of the NIH R01 grant application process
- **A 50-minute recording** entitled "Crafting Your R01 Proposal like the Pro’s: 10 Insider Tips Revealed"
- **How-to advice** from veteran grant winners
- **Insights, techniques and checklists** to help you write effectively and with confidence
- **BONUS!** Includes sample language from FUNDED applications

**A Look at Each Section of Your How-to Manual:**

- **Section 1:** Preparation: What Every PI Should Know Before You Start Applying
- **Section 2:** Successfully Use Your Biosketch and Abstract to Define Your Project and Your Qualifications
- **Section 3:** Prove Your Environment Supports Your Research
- **Section 4:** Research Plan: Make the Most of Your Significance, Innovation, Approach and Overall Impact
- **Section 5:** Special Considerations for Research Involving Humans, 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

Click here to view the entire table of contents.

The 2012 edition includes the 8-section, 299 pg. manual plus a 50-minute how-to recording from a veteran grant winner!

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