Research Career Development Mid-Stage

Prepared for Temple University

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HANOVER RESEARCH

www.hanoverresearch.com

Biography

Sarah Ott, Grants Consultant, Hanover Research

- Joined Hanover as a Grants Consultant in April 2013
- Began grant writing career at West Virginia University Health Sciences Center
- Continued career at University of Texas Health Science Center San Antonio
- Extensive experience and success with basic and clinical science grant proposals
- Has helped clients obtain more than $30 million in funding from government agencies and private foundations including NIH, PCORI, HRSA, CDC, the Department of Education, other federal agencies, and private funders

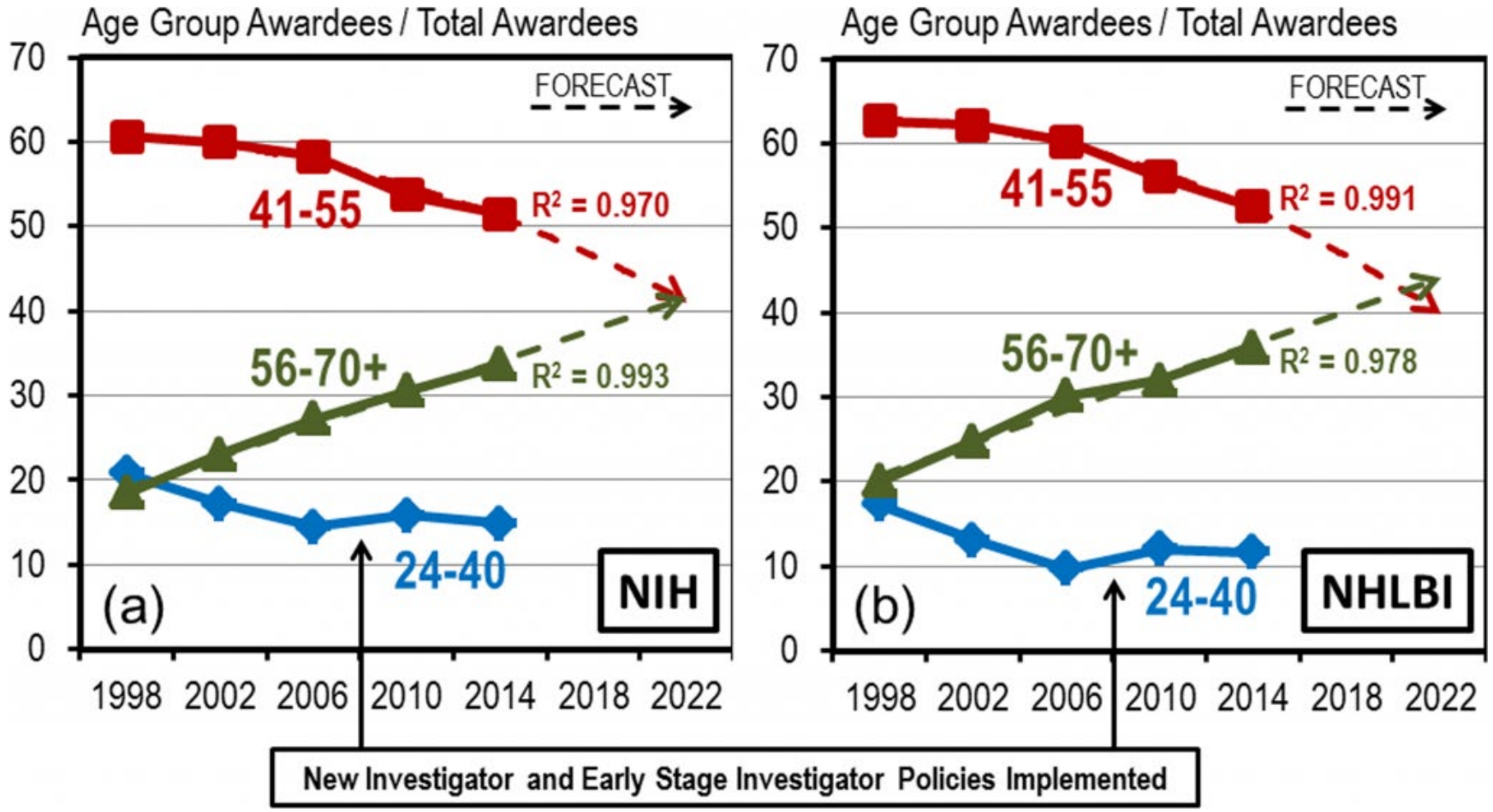
Logistics

- Feel free to ask questions during the presentation
- There will be time for questions after the presentation as well

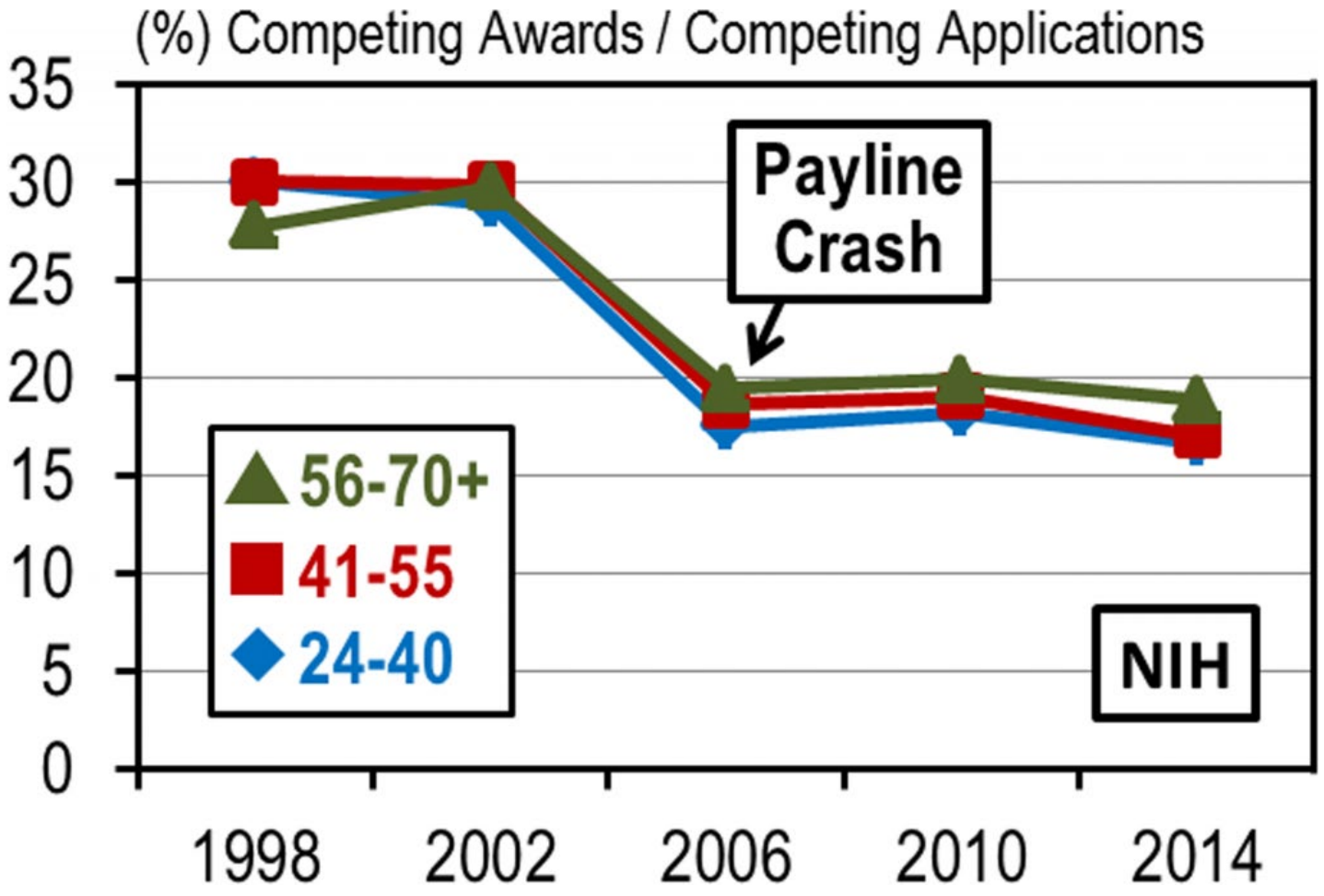
Agenda

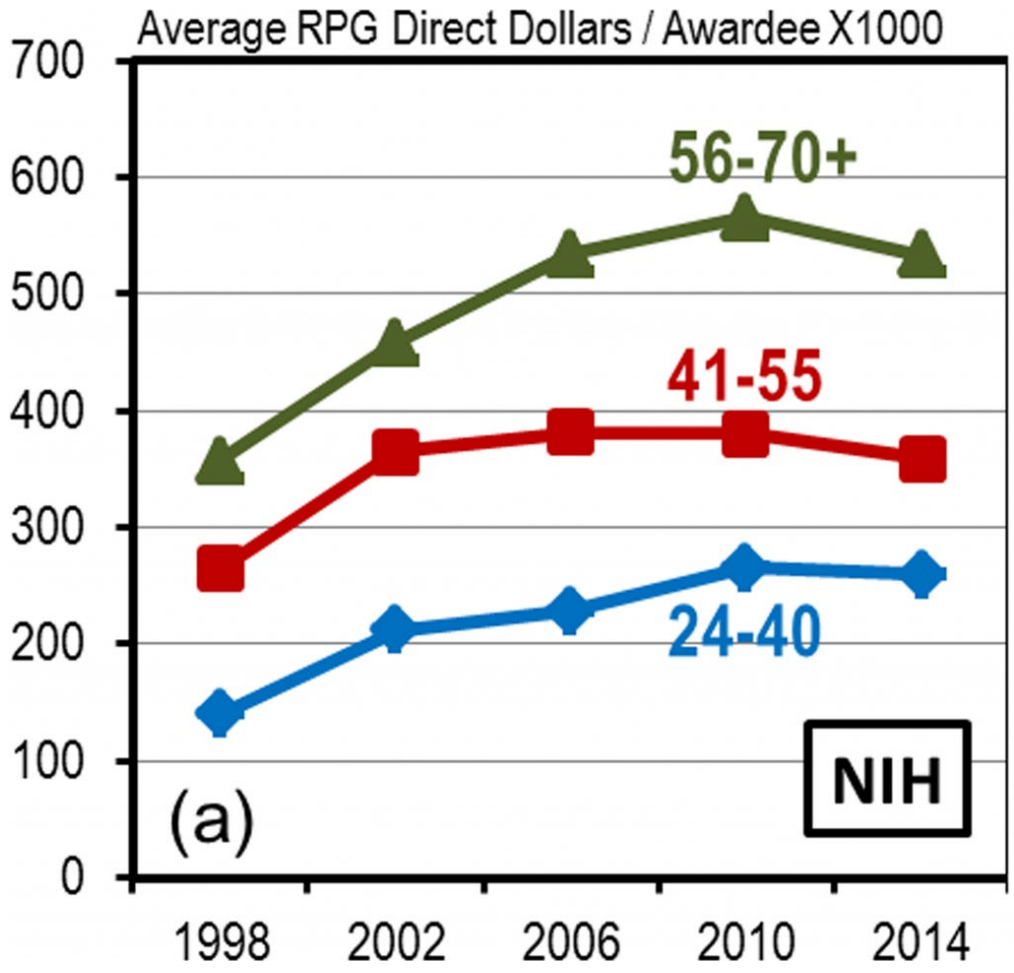
- Shifting PI Demographics
- Build Competitiveness for Successful Grantseeking
- Mapping a Holistic Plan
- Funding Mechanisms-Federal
- Funding Mechanisms-Foundation

SHIFTING PI DEMOGRAPHICS



All figures from: Charette M, Oh Y, Maric-Bilkan C, Scott L, Wu C, Eblen M et al. Shifting Demographics among Research Project Grant Awardees at the National Heart, Lung, and Blood Institute (NHLBI). PLOS ONE 2016. (CC-BY)


(%) Competing Awards / Competing Applications
35
30
25
20
15
10
5
0
1998
2002
2006
2010
2014
Payline Crash
56-70+
41-55
24-40
NIH


Average RPG Direct Dollars / Awardee X1000
700
600
500
400
300
200
100
0
56-70+
41-55
24-40
NIH
(a)
1998
2002
2006
2010
2014

- The data shows mid-career investigators are having a tough time keeping and obtaining federal grant funding
- What is your opinion or personal experience?

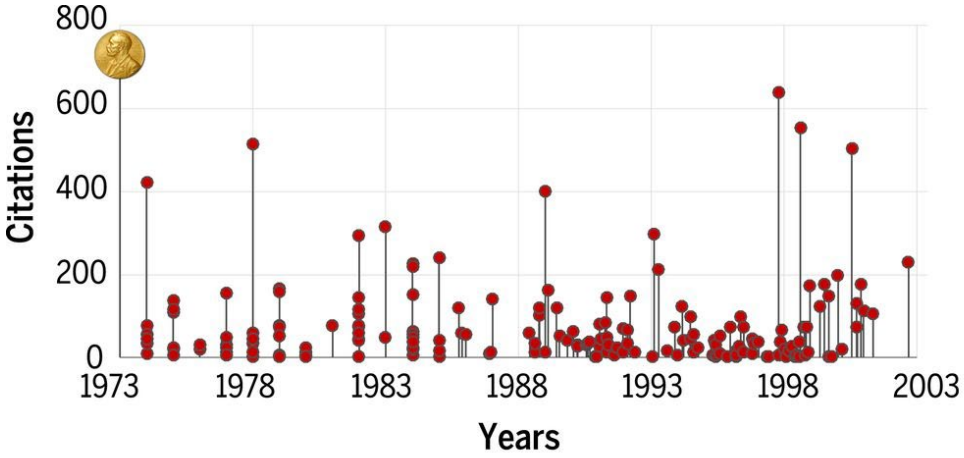
BUILD COMPETITIVENESS FOR SUCCESSFUL GRANTSEEKING

Random Impact Rule

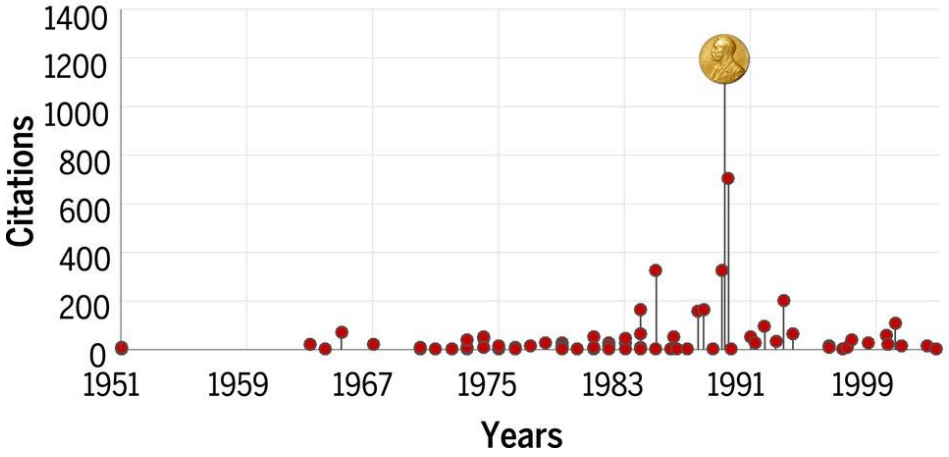
- Impact=most relevant performance measure when it comes to publications
- Impact is randomly distributed throughout a researcher's career
  - Could be 1st publication, mid-career, last publication
- High Q + luck
- Increased productivity ≠ chance of high impact work
- Independent of career stage

Sinatra, R et al. Quantifying the evolution of individual scientific impact. Science 04 Nov 2016.

High Impact Work by Two Nobel Laureates



Frank A. Wilczek
Physics Nobel,
2004



John B. Fenn
Chemistry Nobel,
2002

Sinatra, R et al. Quantifying the evolution of individual scientific impact. Science 04 Nov 2016.

The Science of Science

- Citations and Publications
  - Rich get richer
  - Feedback Loops
    - Lack of diversity
- Early stage faculty are generally more productive
- Predictable Discoveries over Unexpected
  - Breeding environment for risk-adverse scientists

Clauset A, Larremore DB, Sinatra R. Quantifying the evolution of individual scientific impact. Science 02 Feb 2017.

Strategies informed by these theories

- Non-traditional peer review
  - Move out of your comfort zone
  - Internal review by faculty outside your field, faculty at all career stages
  - External review by principal investigators who are receiving funding in your field
- Well-balanced collaboration
  - Collaborating with those outside your field to heighten innovation
  - Collaborating with investigators at different career levels
- Conveying transformative impact in publications and grant proposals
- Making Innovation Palatable in grant proposals

EXERCISE #1 (15 minutes) – Collaboration

Turn to the person to your right. Have them tell you about their research/program focus and/or area of discipline, current projects, publications, and related professional activities, and share the same information with them.

Now try to ***form a concept for a collaborative project.*** What sort of topic is compatible with your respective research/project foci? How do your disciplines complement one another? Approximately how much funding would you need to make the project work (rough estimate)?

Discuss your project concepts with the larger group.

Basic Strategies

- Aligning your research with funder priorities
- Ensuring you are up-to-date with funder expectations
- Revamping your biographical sketch
- Serving as a reviewer
- Publishing and presenting your research
- Building relationships with Program Officers/Managers

EXERCISE #2 (5 minutes) – Biosketch Revamp

Assume that you developed the Biographical Sketch Personal Statement provided. Identify areas you would change. Briefly describe your approach and rationale. Why would you make these changes? What were your considerations?

Example Biosketch Revamp

A. Personal Statement My strong formal training and research background in psychology, behavioral endocrinology, neuroendocrinology, and human sexuality as well as my teaching of pelvic anatomy and the embryology of sexual differentiation of the urogenital (UG) tract have found a common ground in the study of disorders of sex development (DSD). As a scientist in Puerto Rico working in the largest university-based medical center in the Caribbean, I simply cannot ignore the significant amount UG congenital conditions that are routinely seen during consultations in Pediatrics and Urology. It has taken me a number of years to transition from basic research to clinical research, but after completing a number of successful clinical studies I aim to expand my research portfolio by conducting federally-funded health disparities research.

10 MINUTE BREAK

MAPPING A HOLISTIC PLAN

First Steps

- Identify personal and institutional long-term goals
- Areas of focus for leadership in research:
  - Conducting research
  - Presenting
  - Publishing
  - Applying for and receiving grant funding
  - Copyrights and patents
  - Editing and peer review

Distribution of Effort

Focus Area	# Hours/Week	% of Total Duties
Conducting research		
Presenting		
Publishing		
Applying for and receiving grant funding		
Copyrights and patents		
Editing and peer review		

Establishing a Plan

- Goals
  - Identify in a single sentence the focus of your research activity
  - Identify your 5-year research goals
- What skills do you need to learn or develop to reach these goals?
- What resources do you need?
  - Money, support, time
- Do you need to involve collaborators?
- What action steps will you take?
- What is your timeline?
- Are there any potential barriers? If, so how will you address them?

EXERCISE #3 (15 minutes) – Strategizing for a goal of grant resubmission

Goal: Resubmit unfunded R01 proposal

- What skills do you need to learn or develop to reach this goal?
- What resources do you need?
- What action steps will you take?
- What is your timeline?
- Are there any potential barriers? If, so how will you address them?

FUNDING MECHANISMS-FEDERAL

NIH K24

- Midcareer Investigator Award in Patient-Oriented Research
  - The purpose of this program is to provide support to mid-career health-professional doctorates or equivalent who are typically at the Associate Professor level for protected time to devote to patient-oriented research and to act as research mentors primarily for clinical residents, clinical fellows and/or junior clinical faculty.

NIH K26

- Midcareer Investigator Award in Biomedical and Behavioral Research
  - The purpose of this award is to support biomedical and behavioral scientists to allow them protected time to devote to their research and mentoring. The goal of this program is to support established, outstanding investigators by providing protected time for research and mentoring.
  - No FOA currently available

NIH K18

- Research Career Enhancement Award for Established Investigators
  - This program provides either full-time or part-time support for experienced scientists to augment or redirect their research programs through the acquisition of new research skills or to make changes in their research careers by acquiring new research skills or knowledge.
  - Short-term Mentored Career Enhancement Award in Dental, Oral and Craniofacial Research for Mid-Career and Senior Investigators (K18)
  - NIDCD Research Career Enhancement Award for Established Investigators (K18 Independent Clinical Trial Not Allowed)
  - Research Career Enhancement Award to Advance Therapy Development for Alzheimer's (K18)
  - Mid-Career Enhancement Awards to Integrate Basic Behavioral, Biomedical, and/or Social Scientific Processes (K18 Basic Experimental Studies with Humans Required)
  - Mid-Career Enhancement Awards to Integrate Basic Behavioral, Biomedical, and/or Social Scientific Processes (K18 - No Independent Clinical Trials)

NIH R25

- Research Education Program
  - The purpose of this program is to support research education activities that: (a) Complement and/or enhance the training of a workforce to meet the nation's biomedical, behavioral and clinical research needs; (b) Enhance the diversity of the biomedical, behavioral and clinical research workforce; (c) Help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences; or (d) Foster a better understanding of biomedical, behavioral and clinical research and its implications.
  - https://researchtraining.nih.gov/programs/research-education/R25

NSF Plant Genome Research Program (PGRP)

- The PGRP supports genome-scale research in plant genomics that addresses challenging questions of biological importance and of relevance to society. The Program encourages the development of innovative tools, technologies and resources that push the boundaries of research capabilities and permit the community to answer seemingly intractable and pressing questions on a genome-wide scale. Emphasis is placed on the creativity of the approach and the scale and depth of the question being addressed. Data produced by plant genomics should be usable, accessible, integrated across scales and of high impact across biology. Training and career advancement in plant genomics is featured as an essential element of scientific progress. The PGRP continues to focus on plants of economic importance and biological processes and interactions that will have broad impact on the scientific research community and society in general.
  - Career Advancement to build new careers in plant genomics as early career awards (ECA-PGR) or mid-career awards (MCA-PGR).

FUNDING MECHANISMS-FOUNDATION

Foundation Funding for Research

- Usually smaller pots of money
- Small fraction of overall R&D Funding
- NSF data: private foundation funding represents 6% of academic R&D funding in the U.S., while the federal government and research institutions account for 55% and 24%
- Research focus can be narrow
- More likely to fund younger scientists and riskier ideas
- May not cover as much F&A as Federal grants
- Some only accept nominations from an institution or have limited submissions

Foundation for Physical Medicine and Rehabilitation

- Mid-Career Investigator Research Grants program: One grant of $20,000 to be used as seed money for new research projects that extend an established investigator's work in new directions.

Audience-led Foundation Scoping

- Let me know your field of interest and we will look up a couple opportunities on the fly.

Resources

- Open Education Database “100 Places to Find Funding for your Research” http://oedb.org/ilibrarian/100_places_to_find_funding_your_research/
- Science “Where to Search for Funding” http://www.sciencemag.org/careers/where-search-funding
- Databases such as GuideStar and Foundation Center provide lists of nonprofit organizations and their funding goals and restrictions.
- Get a Life, PhD, The Five Year Plan for Tenure-Track Professors. http://getalifephd.blogspot.com/2010/07/five-year-plan-for-tenure-track.html

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Grants Consultant

sott@hanoverresearch.com

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