Preparing Successful Grant Applications in an Increasingly Competitive Environment

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College of Engineering

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Abstract

Grantsmanship, or the art of acquiring research funding, has become a vital component in successful grant applications due to low funding levels. As Jack Kraicer, former Director of Research Grants at the Human Frontier Science Program, said, “The art of grantsmanship will not turn mediocre science into a fundable grant proposal. But poor grantsmanship will, and often does, turn very good science into an unfundable grant proposal.” Young scientists have new ideas that can create significant impact in their respective fields. However, with the recent downturn in funding in the United States, early-career researchers find themselves in an increasingly competitive environment where approximately 10% of projects receive extramural support. Therefore, it is critical to have a clear and concise presentation of the research ideas to engage reviewers. The goal of the current proposal is to enlist the assistance of professional grant-writing services to consult with faculty on a one-on-one basis. Support from SEEDS “You Choose” would provide our young faculty the training and competitive edge required to submit successful grant applications.

Activity goals

The University of Miami offers an excellent workshop on how to write NIH grant applications. However, every proposal needs to be tailored to meet specific requirements of each funding agencies. This SEEDS proposal is intended to provide such a complementary service to junior untenured faculty in the Biomedical Engineering department. After developing a strong proposal based on the general concepts learned in the workshop, a professional grant writer would assist the junior faculty one-on-one. These personalized services would provide insight into specific areas where the application needs improvement. This is especially critical as there is only one chance for resubmission of a particular proposal application to NIH. The grant writer would provide the following services:

1. Critical review of the specific aims and other sections of the grant provided by the respective faculty
2. Provide specific comments to strengthen the innovation and impact of the proposed idea, rectify scientific issues, and any organizational and formatting recommendations
3. Provide a marked-up version of the draft provided by participating faculty that contains embedded/highlighted questions and comments, some preliminary edits, and pointers to areas needing work, requests for clarification, and various prompts.

The Associate Dean of Research in the College of Engineering, Dr. Helena Solo-Gabriele, has identified an excellent grant consultant: Jeffrey Tatro, Ph.D. Dr. Tatro is faculty in the Department of Endocrinology, Diabetes, and Metabolism at Tufts University. He has an impressive research career, with 15 consecutive years of R01 funding from the National Institutes of Health. Dr. Tatro has been providing grant writing services for the past 11 years through his “Grant Rescue” program (www.grantrescue.com). He has provided grant consulting services for top universities throughout the country, including Harvard, Columbia, Cornell, and the University of Pennsylvania.
**Personal goals**

As early-career researchers, we have experienced recurring disappointment of having a research proposal unfunded. While some of these proposals have been discussed and scored, the impact scores were not within the funding range. Acquiring extramural support is not only necessary for maintaining an active research lab but also for faculty promotion and tenure. We strongly believe that the receipt of the SEEDS award will give us the necessary competitive edge during the grant review process that will enable us to get over the hurdle from a scored application to a funded grant. By working directly with a grant writing expert, we will also learn grantsmanship skills that we can apply to future grants to improve our success throughout our careers.

**Budget and budget justification**

The cost of “Grant Rescue” services is $135/hour. Dr. Tatro estimates that approximately 5 hours would be needed to provide a critical review of the grant provided by each participating faculty. Since the goal of this proposal is to provide funding to approximately 5 tenure-track assistant professors who have a complete draft of an NIH grant, $3375, is needed. Dr. Ozdamar, the chair of the Department of Biomedical Engineering, has agreed to provide $875 for this proposal; therefore, priority will be given to tenure-track faculty in this department. If there are additional funds available, faculty in other departments in the College of Engineering who are submitting an NIH grant will be invited to participate.
Thank you Dr. Ziebarth for taking this initiative. I approve of the projected amount. Best wishes, Ozcan

Dear Dr. Ozdamar,

Please find attached the SEEDS application prepared by Dr. Prasad and myself, entitled “Preparing Successful Grant Applications in an Increasingly Competitive Environment.” We are requesting funds to enlist the services of a professional grant writer. As we discussed, these services cost $135/hour and 5 hours are needed per faculty. Therefore, the total funds required are $3375 to help 6 faculty. Since SEEDS provides $2500, we would like to request support from the BME department in the amount of $875.

Thank you for your support.

Best,
Noël

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BIOGRAPHICAL SKETCH

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a.prasad@miami.edu

(a) Professional Preparation

<table>
<thead>
<tr>
<th>Degree</th>
<th>Discipline</th>
<th>Institution</th>
<th>Year</th>
</tr>
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<tbody>
<tr>
<td>PhD</td>
<td>Biomedical Engineering</td>
<td>New Jersey Institute of Technology and University of Medicine &amp; Dentistry of NJ</td>
<td>2011</td>
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<tr>
<td>MS</td>
<td>Biomedical Engineering</td>
<td>Louisiana Tech University, Ruston LA</td>
<td>2005</td>
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<tr>
<td>BS</td>
<td>Electronics &amp; Communication Engineering</td>
<td>Dayananda Sagar College of Engineering, Bangalore, India</td>
<td>2003</td>
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</table>

(b) Appointments

<table>
<thead>
<tr>
<th>Institution</th>
<th>Rank/Title</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Miami</td>
<td>Assistant Professor</td>
<td>2015-date</td>
</tr>
<tr>
<td>University of Miami</td>
<td>Research Assistant Professor</td>
<td>2013-2014</td>
</tr>
<tr>
<td>University of Miami</td>
<td>Postdoctoral Research Associate</td>
<td>2011-2013</td>
</tr>
<tr>
<td>New Jersey Institute of Technology</td>
<td>Research Assistant</td>
<td>2006-2010</td>
</tr>
<tr>
<td>Louisiana Tech University</td>
<td>Research Assistant</td>
<td>2003-2005</td>
</tr>
</tbody>
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(c) Five Related Publications


Five Other Significant Publications


(d) Synergistic Activities
1. Undergraduate student advising
2. Undergraduate, graduate, and high school students project supervision
3. Judge for UM Undergraduate Research, Creativity, and Innovation Forum (RCIF)
4. Stamps and Singer Scholarship Interviewer
5. Summer scholar student presentation
6. Judge for Science Fair Day at Bergen Arts & Science Charter School, Garfield, NJ
7. Grants Reviewer: Natural Sciences and Engineering Research Council (NSERC) of Canada
8. Associate Editor: Frontiers of Neuroprosthetics, Frontiers of Neuroscience

(e) Collaborators and Other Affiliations:

Collaborators: Suhrud Rajguru, Ph.D. (University of Miami, FL), Dalton W. Dietrich, Ph.D. (Miami Project to Cure Paralysis, University of Miami, FL), Jonathan Jagid, MD (University of Miami, FL), Chris Berka, Ph.D. (Advanced Brain Monitoring, CA), Djordje Popovich, Ph.D. (Advanced Brain Monitoring, CA), Wolfgang J. Streit, Ph.D. (University of Florida, FL), Toshikazu Nishida, Ph.D. (University of Florida, FL), Erin Patrick, Ph.D. (University of Florida, FL), Joe Francis, Ph.D. (SUNY Downstate, NY), Justin C. Sanchez (University of Miami, FL), Kim Andersen, Ph.D. (Miami Project to Cure Paralysis, FL), Coleen Atkins, Ph.D. (University of Miami, FL).

Currently Thesis Advisor: Three doctoral students (Ziqian Xie, Shubham Debnath, Katie Gant), one MS student (Anette Pico), serving on 3 dissertation committees (Eric Allseits, Noeline Prins, An Wu).

Currently mentoring five undergraduate students: Kathryn Aubrey, Lauren Zimmerman, Carlos Dallera, Cindy Ruiz, Giovanni Calixte (NSF FGLSAMP Fellow)
Current and Pending Support
Investigator: Abhishek Prasad

Project/Proposal Title: Spinal cord neural interface for neuroprosthetics in a primate model
Status: Funded (Awaiting Notice of Award); Overlap: None
Funding Agency: National Institutes of Health
Total Award Amount: $2.21M
Award Period: 09/2015 – 08/2020
Location of Project: University of Miami
Role on the Project: PI
Person-Months Per Year: 3 academic months; 1 summer month

Project/Proposal Title: Spinal cord machine interface for neuroprosthetic control
Status: Ongoing; Overlap: None
Funding Agency: Department of Defense (DOD)
Total Award Amount: $292,399
Award Period: 08/01/2015 – 03/31/2017
Location of Project: University of Miami
Role on the Project: PI
Person-Months Per Year: 3 academic months; 1 summer month

Project/Proposal Title: An intelligent modeling architecture for fully implantable, bidirectional brain-machine interface
Status: Ongoing; Overlap: None
Funding Agency: Defense Advanced Research Projects Agency (DARPA)
Total Award Amount: $975,000
Award Period: 06/16/2013 – 06/15/2017
Location of Project: University of Miami
Role on the Project: PI
Person-Months Per Year: 2 academic months; 1 summer month

Project/Proposal Title: Autonomous brain-controlled functional electrical stimulation for reach and grasp in chronic cervical spinal cord injury
Status: Ongoing; Overlap: None
Funding Agency: Advanced Brain Monitoring
Total Award Amount: $70,000
Award Period: 12/2015 – 03/2016
Location of Project: University of Miami
Role on the Project: PI
Person-Months Per Year: 1 academic month

Project/Proposal Title: Localized therapeutic hypothermia to improve brain tissue response to chronically implanted neural electrodes
Status: Pending; Overlap: None
Funding Agency: National Institutes of Health (NIH)
Total Award Amount: $2.4M (Prasad Share: $878,000)
Award Period: 08/15/2015 – 08/14/2017
Location of Project: University of Miami
Role on the Project: PI (Multi-PI)
Person-Months Per Year: 1 Summer Month; 2.5 Academic Month
Noël Marysa Ziebarth, PhD
Assistant Professor
Department of Biomedical Engineering
University of Miami

HIGHER EDUCATION


2004  M.S. in Biomedical Engineering, University of Miami, Coral Gables, FL. Thesis title: *Non-Contact Micron Resolution Optical Thickness Measurement of the Lens Capsule during Simulated Accommodation*


PROFESSIONAL EXPERIENCE

**Academic Appointments:**
1/09-pres  *Assistant Professor*, Department of Biomedical Engineering, University of Miami.

**Laboratory Appointments:**
1/11-pres  *Advisory Committee Chairman*, Ultramicroscopy Center, Department of Physiology and Biophysics, University of Miami Miller School of Medicine.

1/09-pres  *Director*, Biomedical Atomic Force Microscopy Laboratory, Department of Biomedical Engineering, University of Miami

6/02-12/08  *Graduate Research Assistant*, Bascom Palmer Eye Institute, Department of Ophthalmology, University of Miami Miller School of Medicine

5/04-12/08  *Student Chief*, Bascom Palmer Eye Institute, Ophthalmic Biophysics Center, Bascom Palmer Eye Institute, University of Miami School of Medicine

1/99-5/02  *Undergraduate Research Assistant*, Bascom Palmer Eye Institute, Department of Ophthalmology, University of Miami Miller School of Medicine

HONORS AND AWARDS

Mentor, Outstanding Graduate Research Assistant Award, University of Miami Graduate School, 2014

New investigator grant recipient, American Federation for Aging Research, 2010

*July 2015*
Ziebarth, Noël M.

Bausch and Lomb Student Innovation Award, 2008
National Science Foundation Graduate Fellowship; 2003-2006
Fight for Sight Student Fellowship; Summer 2003
Tau Beta Pi Spencer Fellowship; 2002-2003

MEMBERSHIP
Tau Beta Pi national engineering honor society (1999-present)
Omicron Delta Kappa leadership honor society (2001-present)
National Merit Scholar (1998)
Association for Research in Vision and Ophthalmology (ARVO) Member (2002-present)
Society of Photo-optical Instrumentation Engineers (SPIE) member (2003-present)
Biomedical Engineering Society (BMES) member (2010-present)

PEER-REVIEWED PUBLICATIONS
* denotes senior or corresponding author
† denotes student mentored by Dr. Ziebarth
§ denotes fellow co-mentored by Dr. Ziebarth


19. Țălu S, Stach S, Sueiras V†, Ziebarth NM. Fractal analysis of AFM images of the surface of Bowman’s membrane of the human cornea. *Annals of Biomedical Engineering.* 2015; 43(4): 906-916. **Figure featured on cover of journal.**


July 2015


RESEARCH FUNDING

Current funded research:

Lipid Neuroprotectants and Traumatic Glaucomatous Neurodegeneration
Department of Defense Vision Research Program-Translational Development Award (MR130303)
02/01/15-01/30/18; $999,999 (DC: $689,319; F&A: $310,679)
Co-Investigator, 5% Effort
PI: Sanjoy Bhattacharya, Department of Ophthalmology

Evaluation of corneal surface quality after sectioning with the Visumax femtosecond laser
Carl Zeiss Meditec (Dublin, CA, USA), Industrial R&D Contract
9/1/2009-8/31/2015; $86,088.50 (DC: $76,829; F&A: $ 9,259.50)
Principal Investigator
5 yearly subprojects (renewed annually):

- Surface quality assessment of human lenticules with cylinder correction
  9/1/2014-8/31/2015; $21,570 (DC: $17,256; F&A: $4,314)

- Cut quality of corneal lenticules (sphere correction) using a femtosecond laser
  2/1/2013-1/31/2014; $24,727.50 (DC: $19,782; F&A: $4,945.50)

- Cut quality of corneal lenticules using a femtosecond laser
  5/15/2011-5/14/2012; DC: $20,915 (No F&A)

- Performace Testing of VisuMax Laser Keratome
  3/1/2010-2/28/2011; DC: $13,318 (No F&A)

- Cut Qualities of Lamellar Dissections in the Cornea
  9/1/2009-8/13/2010; DC: $5,558 (No F&A)

Past funded research:

Atomic Force Microscopy to elucidate age-related changes in structure and mechanics of the ocular lens
American Federation for Aging Research New Investigator Award
7/1/2010-6/30/2013; DC: $75,000 (No F&A)
Principal Investigator

Multi-scale corneal biomechanical characterization using Atomic Force Microscopy
Predoctoral Minority Fellowship, Janice Dias
National Institutes of Health, National Eye Institute (F31)
8/15/2011-11/2015; DC: $143,340 (No F&A)
Sponsor

Multi-scale corneal biomechanical characterization using Atomic Force Microscopy
Merck Graduate Science Research Dissertation Fellowship to Janice Dias
United Negro College Fund
9/1/2012-8/31/2014; DC: $53,500 (No F&A)
Sponsor

July 2015
Cornea crosslinking for the treatment of keratoconus and post-LASIK ectasia.
University of Miami Office of the Provost
06/01/2013-05/31/2014; DC: $17,000 (No F&A)
Principal Investigator

Analysis of biomechanical property measurements of tissues using Atomic Force Microscopy
University of Miami Office of the Provost
06/01/2010-05/31/2011; DC: $15,300 (No F&A)
Principal Investigator

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