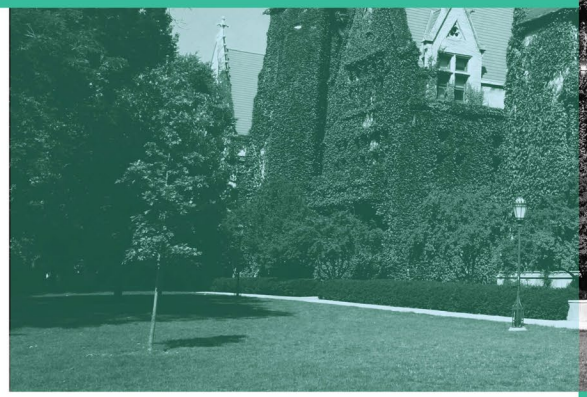
Grants 101: Essentials of Competitive Proposals

Prepared for Temple University



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

GRANTS 101: ESSENTIALS OF COMPETITIVE PROPOSALS PART I

Part I: Agenda

- Know the Funding Landscape
- Set the Stage for Competitive Grantseeking
- Developing Compelling Proposals

KNOW THE FUNDING LANDSCAPE

Context for Solicitations

- Funding trends
- President's budget request (OMB website)
- Funding as an investment
- Funding as an obligation

Types of Funders

- Federal agencies
- State and local government agencies
- National, regional, local, family, community, and corporate foundations
- Professional or industry associations
- Businesses and companies
- Others

SET THE STAGE FOR COMPETITIVE GRANTSEEKING

Know Your Field

- How does your work relate to other work in the field?
  - Nationally, internationally
  - Literature Review
  - The answer to this question should guide the grantseeking process

- Ask yourself:
  - What gap in knowledge or services will this work fill?
  - Does this work build on previous work? Which work?
  - Does this work solve a fundamental challenge facing the field?
  - Does this work duplicate other work?
  - How does this work relate to other work currently in process?
  - How will this work contribute to the field in the short and long term?
  - Is this work a priority for the field?

Assess Your Competitiveness

- Publication Record
- Appointment in department
- Established collaborations > new collaborations > no collaboration
- Experience with trainees
- Preliminary Studies/data
  - Published > Unpublished > In progress > None

Increase Your Competitiveness

- Establish and document appropriate collaborations
- Publish preliminary studies
- Increase the number of publications relevant to the proposed work
- Know your research environment (personnel, equipment, institutional supports) to leverage its strengths, identify and address critical gaps, and minimize other weaknesses
- Establish a record of funding, even if it is internal awards (and publish your findings!)
- Take on trainees & develop / participate in outreach if relevant to your target opportunities
- Serve as a reviewer

Develop a Concept

1. Develop a concept
   - Define goals, objectives, and activities
   - Articulate the concept in a short concept paper

2. Request feedback from mentors and colleagues
   - Ask: What would strengthen this project?
   - Do not skip this step!

3. Refine your project concept based on the feedback you receive

EXERCISE #1 (15 minutes) – Grantsmanship Speed Dating

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)? Take notes. Draft a one paragraph "concept paper." Discuss your project concepts with the larger group.

Identify Prospective Grantmakers

- Who is funding work in your field, or work similar to your proposed project?
  - Identify funders
  - Speak to colleagues: learn where they get funding
  - Review acknowledgements in relevant papers, reports, and presentations
  - Look at websites for professional associations and major industry players
  - Use online resources (e.g., Grants.gov, Foundation Center)
- What are they funding?
- Review prospective funders' recent grants
  - Note trends and any special eligibility standards or preferences
    - New and early stage investigators
- Resources:
- Grants.gov, NIHRePORTER, PIVOT
- Federal RePORTER,
- Candid (Foundation Center)

Exercise #2 (5 minutes): Sample Prospect List – Which One First and Why?

- Assume that you developed the list of prospects on the list that is provided. Number the prospects in the order in which you would apply for them. Briefly describe your approach and rationale. Why did you rank them in the selected order? What were your considerations?

Overview of Opportunities

PROGRAM / GRANT MAKER	RECOMMENDED REQUEST RANGE	APPROACH	DEADLINE
National Science Foundation			
Division of Environmental Biology (Ecosystem Studies, Population And Community Ecology, Biodiversity: Discovery and Analysis) Core Programs	$100,000 to $500,000	Preliminary proposal online	January 23, 2016 (preliminary proposal) August 2, 2016 (full proposal)
Fluid Dynamics	$100,000 to $500,000	Full proposal online	October 20, 2015
Energy, Power, Control and Networks (EPCN)	$100,000 to $500,000	Full proposal online	November 2, 2015
United States Department of Agriculture			
Western Sustainable Agriculture Research & Education (SARE)	$150,000 to $250,000	Pre-proposal online	Expected: June 2016
National Institutes of Health			
School Nutrition and Physical Activity Policies, Obesogenic Behaviors and Weight Outcomes (R01), (R03), and (R21) Programs	Dependent on program	Full proposal online	October 5 (R01) and October 16 (R03 and R21), 2015
Foundations			
David and Lucile Packard Foundation	$50,000 to $100,000	Contact Program Officer	Check for RFPs
Alfred P. Sloan Foundation	$150,000 to $300,000	Letter of Inquiry online	Rolling
Earthwatch Institute: Urban Ecosystems and Sustainable Agriculture and Forest Ecosystems Programs	$20,000 to $80,000	Pre-proposal online	Expected: June 2016

Contact Prospective Grantmakers

- Discuss your work with program officers from priority grantmakers
  - For most opportunities, it is not worth applying for a grant without first contacting a program officer or other funder representative to discuss your proposal
    - "Can We Talk? Contacting Program Officers"
    - "What to Say—and Not Say—to Program Officers"
    - "Communicating with Funders and Program Officers"
- Email your concept paper to the program officer, and ask:
  - Is your agency/organization currently interested in this type of work?
  - If so, do you have any guidance on how best to approach a proposal?
- Key points:
  - If a program officer prefers to speak on the phone, speak to them on the phone
  - Take program officer guidance seriously: they are in the best position to know what will be competitive
- Program officers are there to help you

DEVELOPING COMPELLING PROPOSALS

Planning to Respond to a Solicitation

- Internal capacity and expertise
- Timeframe considerations
- External support
- Planning tools

Review Grantmaker Materials

- Review eligibility
- Funding Amount and Project Period
- Map out your strategy to develop and submit the proposal on time
  - Checklist of all required proposal elements
  - Timeline for proposal development, including key dates and responsibility assignments
- Note deadline for Letter of Intent or pre-proposal, as well as proposal deadline
- Allow time to get internal approval before submission
- Note character-, word-, and page-limits, as well as formatting requirements
- Always allow time for derailments: plan to submit well before the deadline

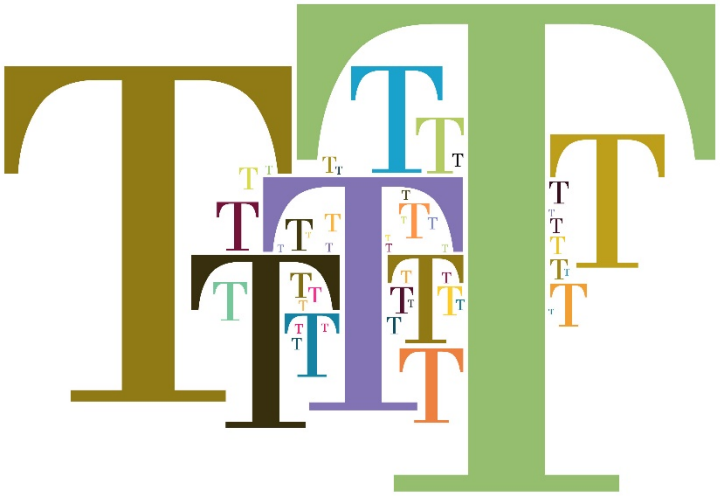
Exercise #3 (5 minutes)

- **Learning Objective**: Identify key elements of a Program Solicitation including:
  - Submission deadline date
  - Goals of the funding source
  - Scoring Criteria
  - Minimum and Maximum Funding Amounts (a/k/a/ Floor and Ceiling)
  - Required Elements (i.e. ancillary documents, resumes, budget, etc.)

Group Exercise: Review the program solicitation provided. Identify key elements including submission deadline date, goals of the funding source, and rating criteria.

Tone and Style Considerations

- The proposal as sales pitch
- Formality levels
- The grant narrative genre
- Using available examples as models/templates



SHORT BREAK (10 MINUTES)

GRANTS 101: ESSENTIALS OF COMPETITIVE PROPOSALS PART II

Part II: Agenda

- Developing compelling proposals: Research Grants
- Developing Budgets
- Assemble and Review
- Reviewer Feedback
- Funder Spotlights

DEVELOPING COMPELLING PROPOSALS: RESEARCH GRANTS

Write the Research Plan

- Prepare research plan narrative outline/draft with holes
  - The research plan is the main part of the grant application describing a principal investigator's proposed research, stating its importance and how it will be conducted
- A typical research plan has four main sections:
  - A. Specific Aims
  - B. Significance
  - C. Innovation
  - D. Approach
- Request any templates/examples needed for attachments such as letters of support, budgets, biosketches, other support sections, etc.

Develop Specific Aims

- Each aim should be directly matched with a hypothesis
  - If you have an idea that is not directly testing your hypothesis, save it for later
- Each aim should be:
  - Highly focused
  - Measurable
  - Feasible
- Independence vs. interdependence
  - Complete independence is ideal
  - Some interdependence is okay
  - Complete interdependence is verboten

Independent vs. Interdependent Specific Aims

- Independent:
  - Aim 1. Identify the segment of the mouthpart required for partial laceration of the strawberry leaf.
  - Aim 2. Evaluate the efficacy of various salt compounds for reducing leaf damage compared to current methods of slug control.
- Some interdependence:
  - Aim 1. Evaluate the efficacy of various salt compounds for reducing leaf damage compared to current methods of slug control.
  - Aim 2. Determine the optimum concentration of salt compounds found to be efficacious for slug deterrence.
- Complete interdependence:
  - Aim 1. Determine whether magnesium chloride applied to strawberry leaves reduces leaf damage compared to current methods of slug control.
  - Aim 2. Determine the optimum concentration of magnesium chloride for slug deterrence.

Specific Aims: Organizational Structure

Organize bullet points in *four* distinct categories that will become four paragraphs.

- Introductory paragraph – definition of problem/critical need
- Proposed solution paragraph – objective(s) and rationale (what, who, how, why)
- Specific Aims list – steps to meeting objective (s) and thereby addressing critical need
- Significance paragraph – novelty, expectations, and impact

Sources: Colson (2009); Dresbeck (2013); Giddings (n.d.); Jelinski (n.d.); NIH (November 25, 2015); Univ. of Washington (n.d.)

NIH Specific Aims Example Introductory Paragraph

Viruses are thought to be involved in 15% to 20% of human cancers worldwide, thus providing critical tools to reveal common mechanisms involved in human malignancies. As the etiologic agent of adult T cell leukemia/lymphoma (ATLL), human T cell leukemia virus type I (HTLV-1) is just such a virus. HTLV-1 encodes a potent oncoprotein, Tax, which regulates important cellular pathways including gene expression, proliferation, apoptosis, and polarity. Over the years, Tax has proven to be a valuable model system in which to interrogate cellular processes, revealing pathways and mechanisms that play important roles in cellular transformation. Although the Tax oncoprotein has been shown to transform cells in culture and to induce tumors in a variety of transgenic mouse models, the mechanism by which Tax transforms cells is not well understood. A large number of Tax mutants have been generated and their biological activities have been thoroughly characterized, primarily in cell culture systems. Currently, a major obstacle in the field is that the transforming activity of Tax mutants cannot be compared using available transgenic models due to random transgene integration sites, variable transgene copy number, and inconsistent transgene expression levels, making it difficult to link the biological activities of Tax mutants with their transforming potential.

NIH Specific Aims Example Proposed Solution Paragraph

To solve this problem we will develop an innovative mouse model system in which to study Tax tumorigenesis using targeting vectors containing wild-type or mutant Tax genes that are silenced by a preceding floxed stop cassette. These vectors will be knocked in to the Rosa26 locus of recipient mice by recombination. After crossing these mice with Lck-CRE mice, the stop cassette will be specifically excised in developing thymocytes where the Lck promoter is active, allowing conditional expression of wild-type or mutant Tax proteins in T cells, the natural target of HTLV-1 infection. The feasibility of our proposed mouse model is supported by Lck-Tax transgenic mice having been developed and producing a leukemia that closely resembles ATLL. Thus, targeting of Tax expression in cells in which the Lck promoter is active is expected to produce a similar disease in our model. In our improved model system, insertion into the Rosa26 locus will eliminate random integration sites and standardize gene copy number resulting in consistent levels of wild-type and mutant Tax protein expression.

Note: this example does not include a statement of qualifications and the hypothesis is the last sentence, illustrating the ability of the author to flex the model to meet descriptive needs/preferences.

NIH Specific Aims Statement Examples

- Very Short
  - Determine the extent to which AH1 is downregulated by NEURO1 ablation.
  - Determine the extent to which insulin resistance is affected by NEURO1 ablation.
  - Measure whether NEURO1 null mice are more susceptible to inflammation.
- Numbered without descriptive headers
  - AIM 1. Establish safety, feasibility and accuracy of NIR fluorescence image-guided SLN dissection in patients with Stage I and II lung cancer.
  - AIM 2. Compare detection of NIR fluorescence image-guided SLN identification and excision with conventional staging lymphadenectomy.
  - AIM 3. Assess the predictive value of the detection of “occult” nodal metastatic disease on subsequent disease recurrence.

Significance

- States the research problem including the proposed rationale, current state of knowledge and potential contributions and significance of the research to the field
- Critically evaluate existing knowledge, including background literature and relevant data
  - References should reflect an updated knowledge of the field
  - Specify existing gaps that the project is intended to fill
- Discussion should convey the importance and relevance of the research aims
- Highlight potential policy or practice impacts.
- Highlight why research findings are important beyond the confines of the specific research project (e.g., significance; how research results can be applied)

Innovation

- Innovation can be
  - Novel approach
  - Novel population
  - Novel question
  - All the above
- ½-1 page
- Balance novelty and palatability
- Use literature to make the case for innovation
- Clearly state what is innovative

Innovation Common Mistakes

- Making claims of novelty that are not true or not supported by the literature cited
- Failing to identify all innovative aspects of the work
- Relying on minimally incremental innovation (e.g., previous work was with men ages 30-45 and the proposed work is ages 30-50)
- Promoting innovation without impact

Approach

- This section is critical for demonstrating that the applicant has developed a clear, organized and thoughtful study design
- Include any Preliminary Studies (if applicable)
- Describe how the research will be carried out
  - Should provide an overview of the proposed design and conceptual framework
  - Study goals should relate to proposed study hypotheses
  - Include details related to specific methodology; explain why the proposed methods are the best to accomplish study goals
  - Describe any novel concepts, approaches, tools or techniques (NIH Innovation)
  - Include details of how data will be collected and results analyzed
  - Consider required statistical techniques
  - Include proposed work plan and timeline
  - Consider and discuss potential limitations and alternative approaches to achieve study aims

Approach Structure: Basic Research

- Study design/overview
- Description of experiments to be conducted under each aim – I recommend including
  - the aim and hypothesis
  - a little bit of rationale
  - description of the experiment
  - occasionally additional preliminary data (usually figures)
  - potential challenges and alternative approaches
- Statistical considerations
- Timeline

Common Mistakes in Basic Research

- Too little experimental detail – should include concentrations, length of time, treatment conditions, etc.
- Failure to discuss potential challenges and alternative approaches
- Inclusion of experiments that cannot achieve the aim (most easily remedied by adjusting the aim)
- Too ambitious for the budget and/or timeframe

Approach Structure: Clinical, Behavioral, Population Research

- Approach
  - Study design (including underlying theory, experimental design, rationale for design choice, sample size, etc.)
  - Setting
  - Population
  - Recruitment plan
    - Who, what, when, where, how
    - Inclusion/exclusion criteria
    - Enrollment and consenting process
  - Retention plan
    - Incentives
    - Contact plan
    - Re-engagement plan
    - Criteria for defining attrition

Approach Structure: Clinical, Behavioral, Population Research

- Staff training or other preliminary work to be completed prior to intervention
- Intervention development (if appropriate)
  - Who, what, when
  - Theory
  - Prior work and foundational approaches
  - Stakeholder involvement
- Description of the intervention
  - Treatment details (timing, dose, content, etc.)
  - Differences in treatment across groups
  - Attention to fidelity

Approach Structure: Clinical, Behavioral, Population Research

- Measures
  - Name and description of measure
  - Purpose/rationale
  - Citations and statistics related to reliability and validity – must be relevant to the target population
- Data collection plan
  - Timing and method
  - Target population
- Data management plan
- Data analysis plan
  - Sample size and power calculations
  - Proposed analyses (appropriate to the complexity of the project and the nature of the hypotheses)

Approach Structure: Clinical, Behavioral, Population Research

- Feasibility and fidelity assessment plan
- Timeline
- Dissemination plan (occasionally and only if space allows)

Common Mistakes in Clinical, Behavioral, and Population Research

- Poor justification of the chosen design
- Unrealistic or unsupported recruitment and retention expectations
- Inadequate sample size / power and/or inadequate population for recruiting adequate sample
- Insufficient intervention development and/or detail
- Poorly documented or absent stakeholder involvement where required or expected
- Measures inappropriate for the desired outcomes or target population
- Too ambitious for budget and/or timeframe
- Failure to engage and/or document involvement of partners
- Inadequate analysis plan

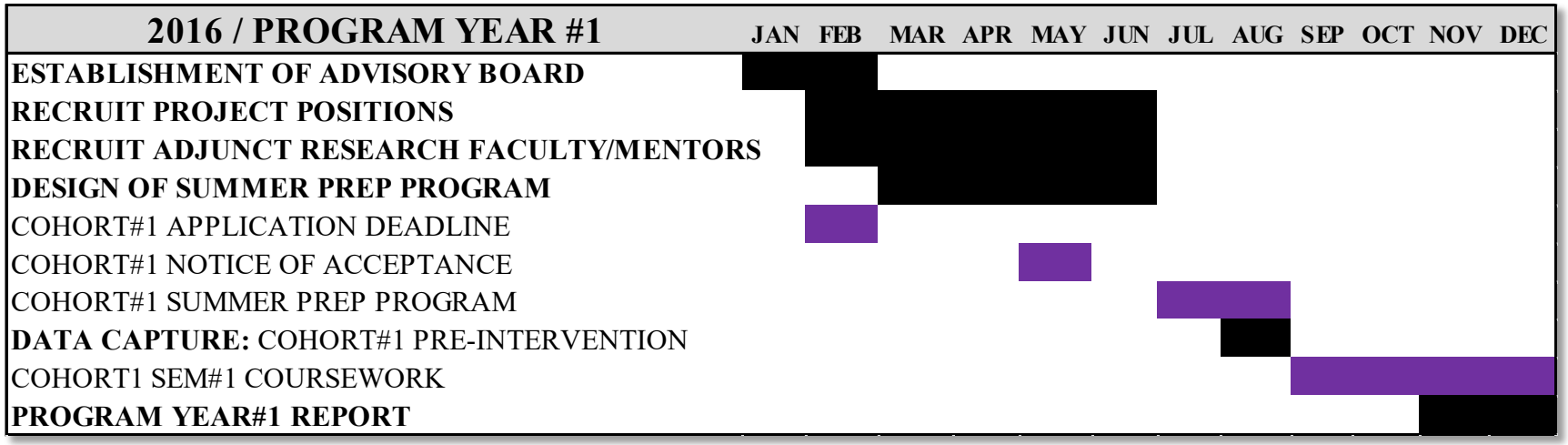
Project Timeline

- Even if it is not required, it can be helpful for clarifying what will happen when
- Especially important if grant funds will not arrive at the start of an academic year

- Two primary options:
  - Gantt Chart (Excel)
  - List (Excel or Word)

Project TimeLine Examples

Gantt Chart Format



List Format

2016 / PROGRAM YEAR #1	PERIOD
ESTABLISHMENT OF ADVISORY BOARD	JAN-FEB
RECRUIT PROJECT POSITIONS	FEB-JUN
RECRUIT ADJUNCT RESEARCH FACULTY/MENTOR	FEB-JUN
DESIGN OF SUMMER PREP PROGRAM	MAR-JUN
COHORT#1 APPLICATION DEADLINE	FEB
COHORT#1 NOTICE OF ACCEPTANCE	MAY
COHORT#1 SUMMER PREP PROGRAM	JUL-AUG
DATA CAPTURE: COHORT#1 PRE-INTERVENTION	AUG
COHORT1 SEM#1 COURSEWORK	SEP-DEC
PROGRAM YEAR#1 REPORT	NOV-DEC

Good vs. Fundable- PI and Key Personnel

- Team Composition
  - Specific to the research proposed
  - Must provide necessary expertise to implement all aspects of the project
  - Personnel with a history of NIH funding are beneficial
  - Personnel and collaborators who can augment the PI's weaknesses are beneficial
  - Multi-disciplinary teams are encouraged where appropriate
  - Leverage the strengths of the team
  - Add to the team if strengths/expertise are inadequate
- Behind the Scenes: Common Mistakes
  - PI with no history of funded research
  - Gaps in expertise relative to project needs
  - Poorly defined roles for Senior/Key Personnel
  - Failure to provide evidence of past or current collaborations

Good vs. Fundable- Approach

- Most successful proposals are hypothesis driven
- Aims and approach must directly address the hypothesis or focus
- Scope of project must be constrained by budget, length, and available resources (including personnel)
- Use literature and experience to inform design
- Behind the Scenes: Common Mistakes
  - No hypotheses
  - No clear focus or direction; unrelated research questions
  - Overly ambitious
  - Accepting design flaws due to resource constraints
  - Inadequate rationale for design choices/parameters
  - Underpowered studies due to resource limitations or failure to properly estimate sample size
  - Inappropriate design for the research question

Good vs. Fundable- Structure and Substance

- Structure vs. Substance
  - Poorly written proposals receive lower scores
  - Failure to follow certain conventions marks an investigator as inexperienced (or oblivious)
  - Content is still king

Structure: Tips for a Beautiful Proposal

- Arial, 11pt (as small as 8pt or 9pt in figures and tables)
- Fully justified text; 0.8” top margin, 0.5” all others
- 0.25” indent for paragraphs
- Some space between paragraphs, headings, and other elements (I start with 4pt spacing in general and 8-12pt preceding headers)
- Text wrap and right align all figures and tables that are less than 80% of the page width
- Logically place all tables and figures with the referring text – if it the text refers to a table or figure on another page, indicate that in the text
- Bold figure and table indicators in the text
- Adopt a consistent style for subheadings and subsections (section numbers/letters are only necessary in larger proposals or proposals with many internal references)

Structure: Writing Tips

- Use first person rather than third person (yes, really)
- NIH proposals are not foundation proposals – reviewers are not amused or positively influenced by inspirational quotes, heartwarming vignettes, or other approaches designed to establish an emotional connection
- Tell a logical story – identify the problem or question, place it in scientific / public health context, identify what sets the proposed work apart from what has been done previously, and provide a convincing, detailed approach to fill the knowledge gap
- Focus on content first and length last

Structure: What not to do

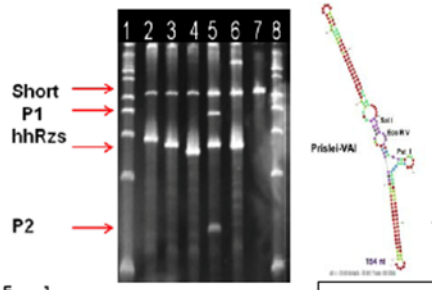


Fig. 1. In Vitro Cleavage of Human *RHO* mRNA. (Left) *In vitro* transcription from linear plasmid templates for the human *RHO* mRNA (510 nt piece = Short), and the various Prislei-VAI constructs were made at 37°C. Lane 1: **MW markers;** Lane 2: **Short + Chrys13-725 in Prislei;** Lane 3: **Short + Chrys8-725 in Prislei;** Lane 4: **Short + Inactive 725 in Prislei;** Lane 5: **Short + Active 725 in Prislei;** Lane 6: **Short + Prislei;** Lane 7: **Short substrate (510 nt);** Lane 8: **MW markers.** hhRz 725 cleaves effectively within VAI-Prislei without a TLR. Enzyme core mutation obviates catalysis. Stabilized Chrysanthemum hhRz without TLR has no cutting. (Right). 2D RNA structure of VAI scaffold . The hhRz inserts between the SalI and PstI sites.

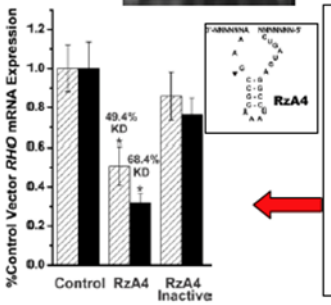


Fig. 2. In Cellulo Cleavage of Human *RHO* mRNA. (Left) HEK293 transfection with control plasmid (VAI with no hhRz) and with active or inactive hhRz 725 constructs. Hatched bar and black bar are different VAI scaffolds (black is Prislei VAI). Active hhRz 725 suppresses levels of full length human *RHO* mRNA by 50-68% depending upon VAI scaffold type ($p<0.05$), but inactive hhRz does not suppress indicating a pure catalytic effect. (Right). Shows the 2D structure of the minimal hhRz with arbitrary antisense flanks. Inactive mutant has GtoC (arrowhead) conversion.

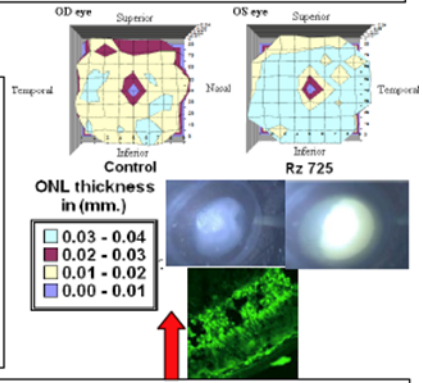


Fig. 3. Preliminary Evidence of Photoreceptor Rescue in adRP Model. (Top) Subretinal Injection of rAAV expressing 725 hhRz or control without hhRz into the nasal retina. Right eyes (OD) injected with control and left eyes (OS) with 725 hhRz vector. Outer nuclear layer (ONL) thickness measured by optical coherence tomography (OCT) across retinal surface and plotted in areal topography maps (color scale in millimeters below). 725 hhRz promotes rescue of at least nasal and inferior quadrants relative to control. (Middle). Subretinal injection of dye in glass needle inserted through eye wall from right side. (Bottom) Histological section through a mouse retina that received a subretinal injection of rAAV that expresses EGFP (green) in outer nuclear layer (photoreceptors).

within its anticodon loop region (Medina and Joshi, 1999), and other tRNAs have been used as hhRz scaffolds in therapeutic contexts. Additionally, $htRNA^{Lys3}$ has been widely studied, including two decades of work by collaborator Agris (Agris et al.,1997; Yarian et al., 2000; Stuart et al., 2000; Murphy et al., 2004; Bilbille et al., 2009; Vendeix et al., 2012). Recently, the $htRNA^{Lys3}$ scaffold was used to abundantly express various small and large RNA aptamers and hhRzs in bacteria for biophysical and structural analysis (Ponchon and Dardel, 2007, 2009). The scaffold maintains the tRNA intrinsic RNA polymerase III A and B box promoter elements to allow high-level expression in human cells. $htRNA^{Lys3}$ is naturally expressed in human cells (unlike adenoviral VAI), decreasing toxicity potential in the context of a human gene therapy, and is post-transcriptionally modified in a natural manner. **We plan to exploit the potential of the $htRNA^{Lys3}$ scaffold**

DEVELOPING BUDGETS

Detailed Budget

- Typical budget lines include:
  - Personnel
  - Fringe Benefits (standard rates)
  - Travel
  - Equipment (durable, long-lasting, costs more than $5,000 each)
  - Supplies (expendable, short-term)
  - Contractual
  - Construction
  - Indirect Costs (note limitations)
  - Other
- It is often helpful to develop the budget in a separate spreadsheet using categories that make sense internally, and only “translate” to the grantmaker’s required form after the budget is final

Budget Narrative

- The budget narrative must be consistent with the project narrative
- Tips for budget narrative development:
  - Show a clear method of calculation for each item
  - Link each item back to grant activities and grantmaker goals
  - Use the same terminology that you used in the project narrative
  - A table can make the information easier to digest, even in the budget narrative
- Be specific!
  - Vague: We will subcontract with a program evaluation company. Funding is requested at $25,000
  - Specific: We will contract with an independent professional evaluation service to conduct a rigorous program evaluation to verify impact and results as outlined in the Evaluation Plan. This cost is estimated at $100/hour and includes 200 hours of work plus $5,000 in travel costs associated with two site visits during the grant term. Total: $25,000

ASSEMBLE AND REVIEW

Assemble Attachments/Ancillary Documents

- Attachments vary by funder and solicitation, but often include:
  - Abstract / Project Summary (Write it last!)
  - Biosketches / CVs
  - Quotations or documentation for specific budget items
  - Detailed project timelines
  - Letters of commitment or Memoranda of Understanding
  - Agency-specific documents (e.g., NSF's Current and Pending Support)
- Keep careful track of all your attachments!

Review Application Materials

- Review the package as a whole:
  - Is it internally consistent?
  - Does it follow all funder guidelines?
  - Will a reviewer be able to find what s/he needs in the package?
  - Will a reviewer who doesn't know you, your institution, or your work need any additional information to understand your project?
- Double check to make sure the package is complete
- Obtain internal approval for submission
- Submit the package before the deadline date if at all possible

REVIEWER FEEDBACK

Typical Funder Review

The Review will:

- Describe the outcome of the scientific review process
- Summarize the basis for your score

It is best to :

- Assume comments are helpful
- Not be defensive
- Learn from the feedback
- Remember that the reviewer is **always** right
- Assume there are even more flaws than listed

After Receiving Your Review

- Determine if the application is worth resubmitting
  - Major flaws that may not be “fixable”
    - Work has been done
    - Past productivity of investigators
    - Poor resources or facilities
  - If you get little criticism and a high score and the reviewers were appropriate
    - May not be worth resubmitting
  - Concerns more easily addressed:
    - Scope of work
    - Data interpretation
    - Insufficient discussion

After Receiving Your Review

- If your proposal can be revamped:
  - Identify the most important concerns
    - Organize by Review Criteria area
    - Evaluate for consistency
- Contact a Program Director
  - Give opinion on score and reviewer comments
  - Budget issues
  - Resubmission of application
  - Appropriateness of your response to reviewers comments

Learn from the Process

- Grantseeking is a competitive, iterative process
  - Many grants aren't funded on the first submission
  - For some opportunities, the expectation of resubmission is built in
  - Learn as much as you can from each grantseeking process
  - Reviewers' comments are very valuable: pay attention
  - A grant decline can be the opening step in funder relationship development

FUNDER SPOTLIGHTS

Funder Spotlight: PCORI

VISION

- Patients and the public have information they can use to make decisions that reflect their desired health outcomes

MISSION

- PCORI helps people make informed healthcare decisions, and improves healthcare delivery and outcomes, by producing and promoting high-integrity, evidence-based information that comes from research guided by patients, caregivers, and the broader healthcare community

pcori
PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE

$350+ million
Awarded Annually

Independent, Non-profit NGO (Fed. Funded)

Stakeholder Emphasis

Funder Spotlight: DOD

DOD funds R&D relevant to its mission predominantly in engineering, computer/information science, and physical sciences. DOD also funds limited social science, medical, and life science research.

DOD has many different funding organizations each with its own foci and idiosyncrasies. Best known are the three Services (Air Force, Army, and Naval) and the Defense Advanced Research Projects Agency (DARPA).

DOD funds basic research, applied research and advanced technology development. The Department has identified 7 priorities: Autonomy, Counter Weapons of Mass Destruction, Cyber Science and Technology, Data-to-Decisions, Electronic Warfare / Electronic Protection, Engineered Resilient Systems, and Human Systems.

60% of Basic Research Funding goes to Universities

Majority of funding is single investigator efforts

Funder Spotlight: NSF

NSF funds research and education in most fields of science and engineering. It does this through grants, and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded.

The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Accounts for ¼ of Federal Basic Research Funding for Academic Institutions

Funder Spotlight: NIH

Mission: to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability

The goals of the agency are:
to foster fundamental creative discoveries, innovative research strategies, and their applications as a basis for ultimately protecting and improving health;
to develop, maintain, and renew scientific human and physical resources that will ensure the Nation's capability to prevent disease;
to expand the knowledge base in medical and associated sciences in order to enhance the Nation's economic well-being and ensure a continued high return on the public investment in research; and
to exemplify and promote the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science

Invests $32 Billion Annually in Medical Research

Over 80% of funding goes to 2,500 institutions

Resources: Hanover Grant Academy

- Hanover works with tenure track faculty at Temple to provide a continuum of support to develop and submit a grant proposal.
- Support is tailored to the needs of individual PIs and includes:
  - Pre-proposal Support: We help PIs to identify an appropriate funding mechanism for their concept; identify potential internal or external partners; and develop a concept paper
  - Proposal Development Support: We supplement the work of project teams by providing partial proposal writing support (revising or rewriting) and consultative grant narrative editing. These services vary based on PI needs and submission deadlines
  - Proposal Review Support: We provide a strong review, edit, and critique of client-drafted narrative materials, helping the project team ensure compliance with submission guidelines to heighten the competitiveness of their proposal

Slide Set Sources

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- Humanities Indicators, American Academy of Arts and Sciences, https://www.humanitiesindicators.org/content/indicatordoc.aspx?i=11
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HANOVER RESEARCH

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