

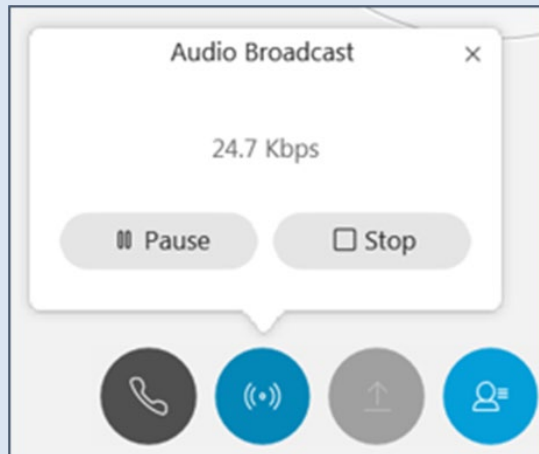
Welcome
We will begin at 12:00 PM ET

SOT Research Funding Insights Session

You have two choices for audio

via audio broadcast (Default)

The Audio Broadcast will connect automatically and the Audio Broadcast panel will appear. Listen through your computer speakers or headset.



Please note that this webinar will be recorded.

via telephone/or computer (if needed)

Select the **phone icon** below the participants list. Connect using computer audio or dial-in using the specified phone number, event number, and your **attendee ID**. Phone lines will be muted.

Send questions to “All Panelists” the **Q&A** panel.

Welcome

SOT Research Funding Insights Session

SOT | Society of
Toxicology

Creating a Safer and Healthier World by Advancing
the Science and Increasing the Impact of Toxicology



Understanding the NIH Grant Peer Review Process

May 13, 2021

Laura Thomas, Ph.D.

laura.thomas@nih.gov

Scientific Review Officer

Division of Extramural Research and Training

National Institute of Environmental Health Sciences

The Path of a Successful Application





Applications are assigned to:

- **Institutes or Centers:**

- Based on overall mission and guidelines of the Institute or Center.
- Can be dual assignments.

- **CSR or a study section at an Institute/Center**

- Special emphasis panels (SEPs) are review groups formed on an ad hoc basis for apps requiring special expertise or certain types of grants (fellowships, training grants, small businesses, etc.).

<https://public.csr.nih.gov/ForApplicants>

Review Meetings

- Each standing study section has ~12-22 regular members, plus temporary reviewers from the scientific community.
- SEPs can be smaller or larger.
- Number of applications reviewed depends on number received and if all applications are being discussed.

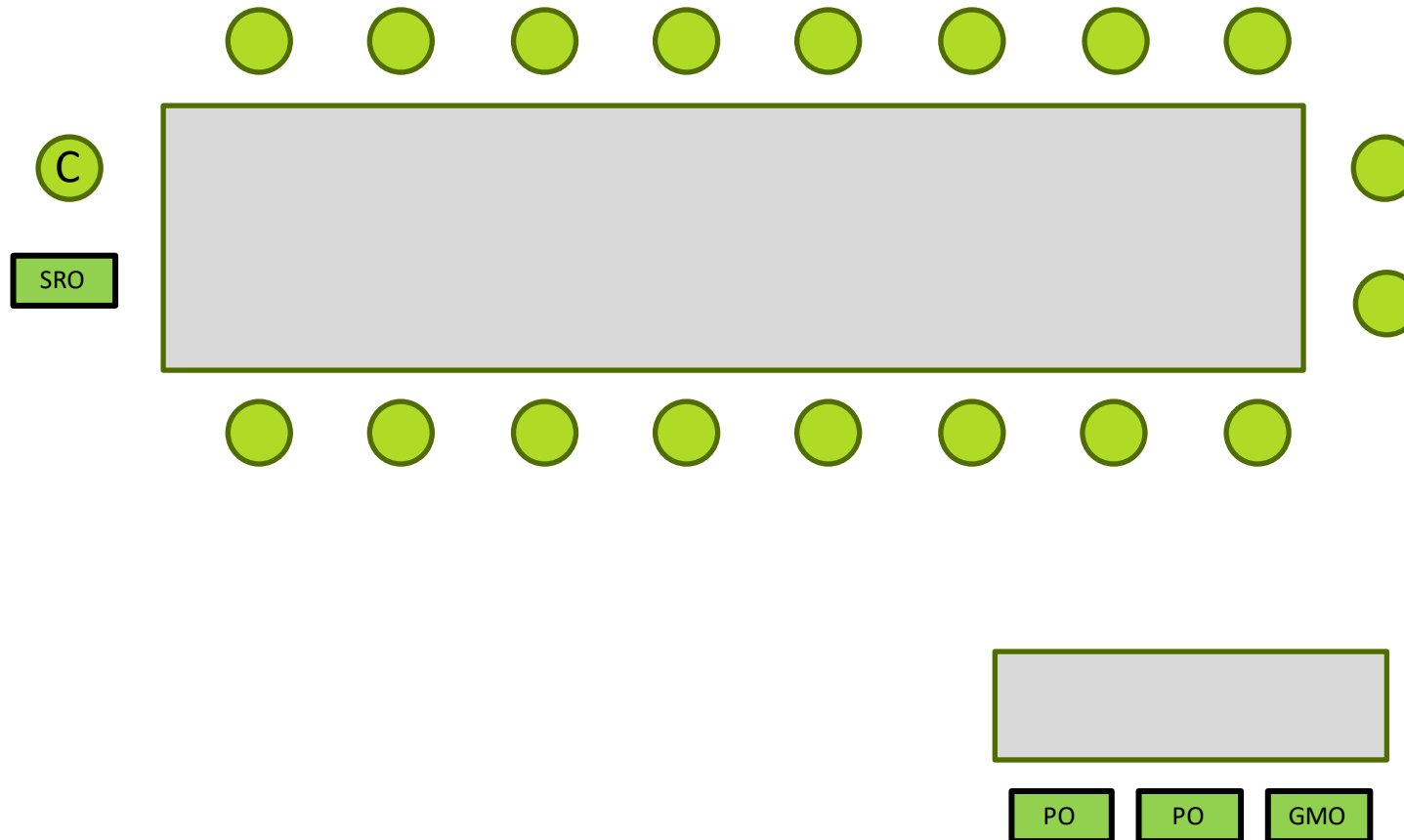
Meeting formats:

- 1) In person
- 2) Telephone
- 3) Online asynchronous
- 4) Zoom

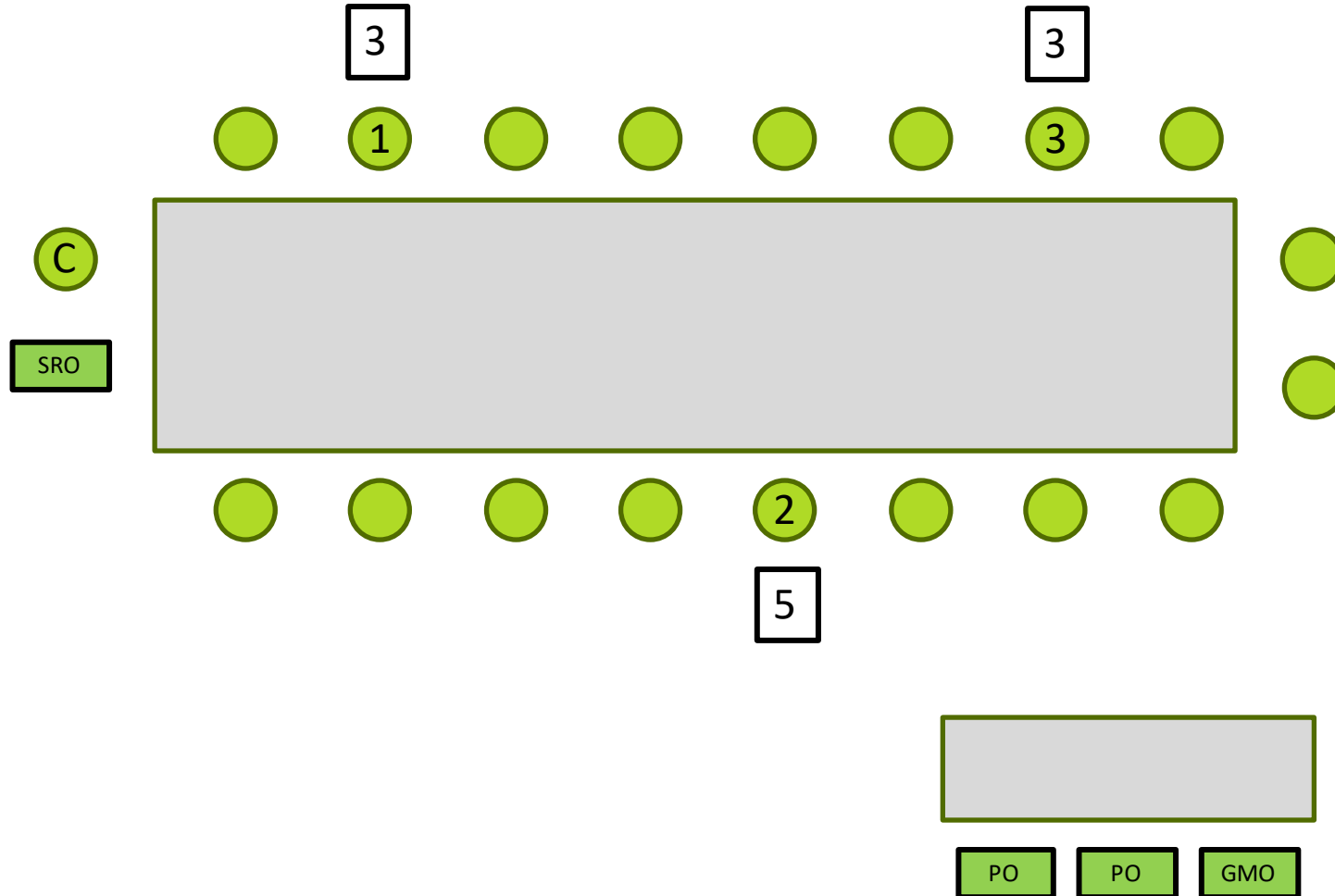


YouTube: “NIH Peer Review Revealed” for a mock study section

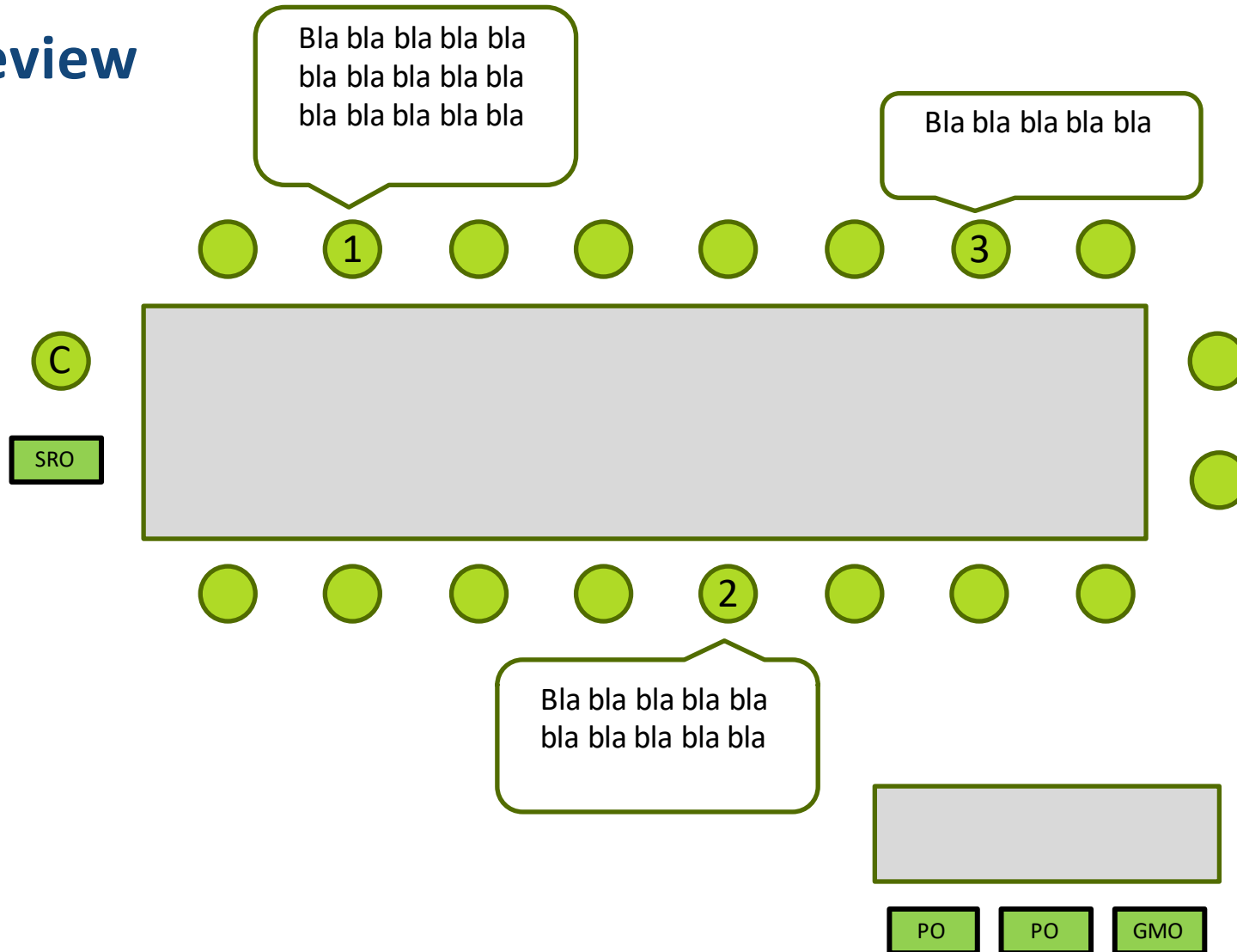
Typical Study Section



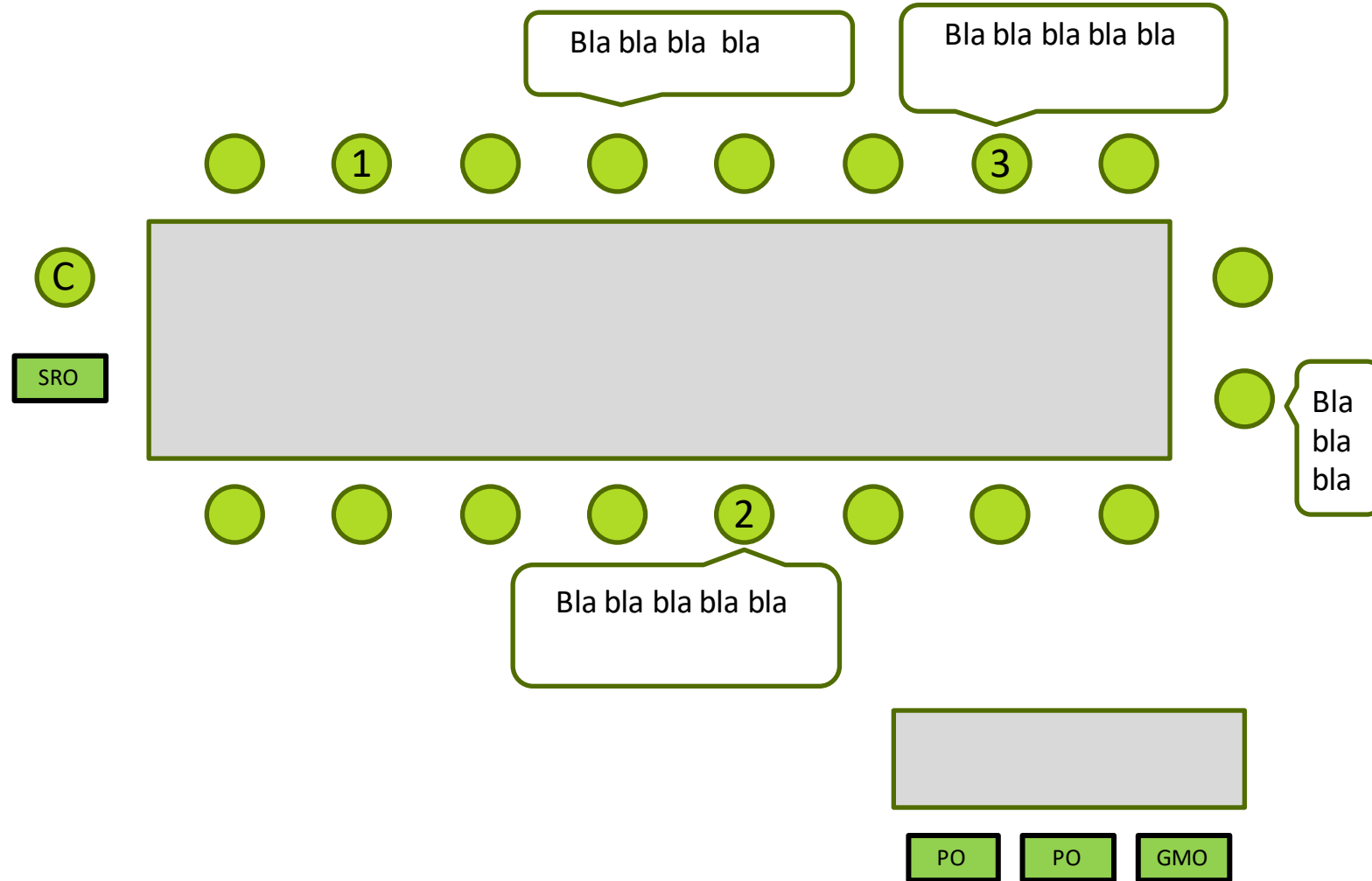
Initial Scoring



Review



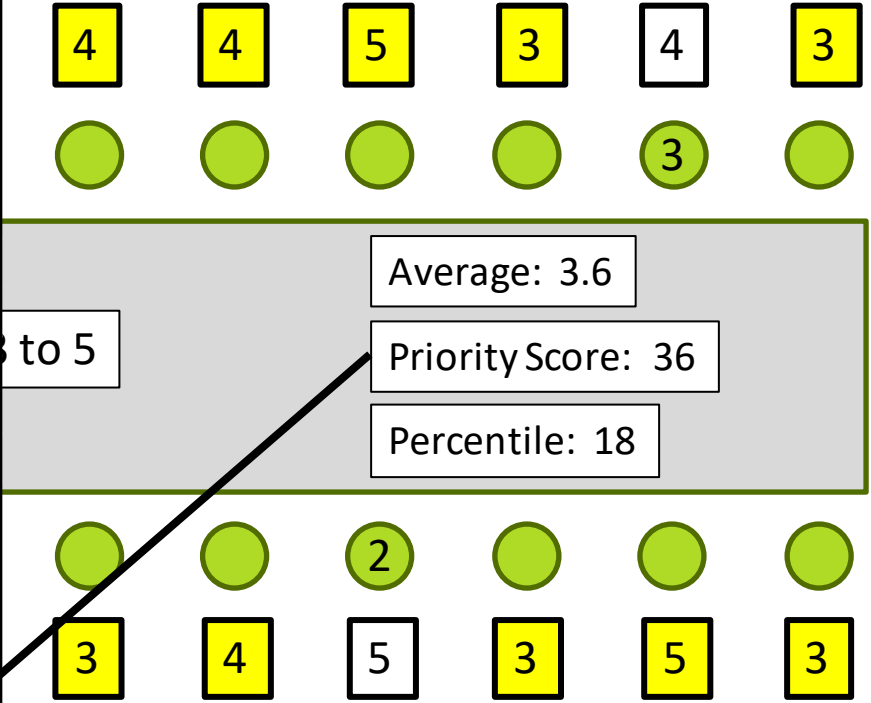
Discussion



Final

Percentile	Score
1	10
1	14
1	16
2	17
3	18
6	20
7	21
10	23
13	26
14	27
14	27
15	29
17	30
17	31
17	32
17	33
17	35
19	37
19	37
21	39
21	40
23	43
24	44
26	45

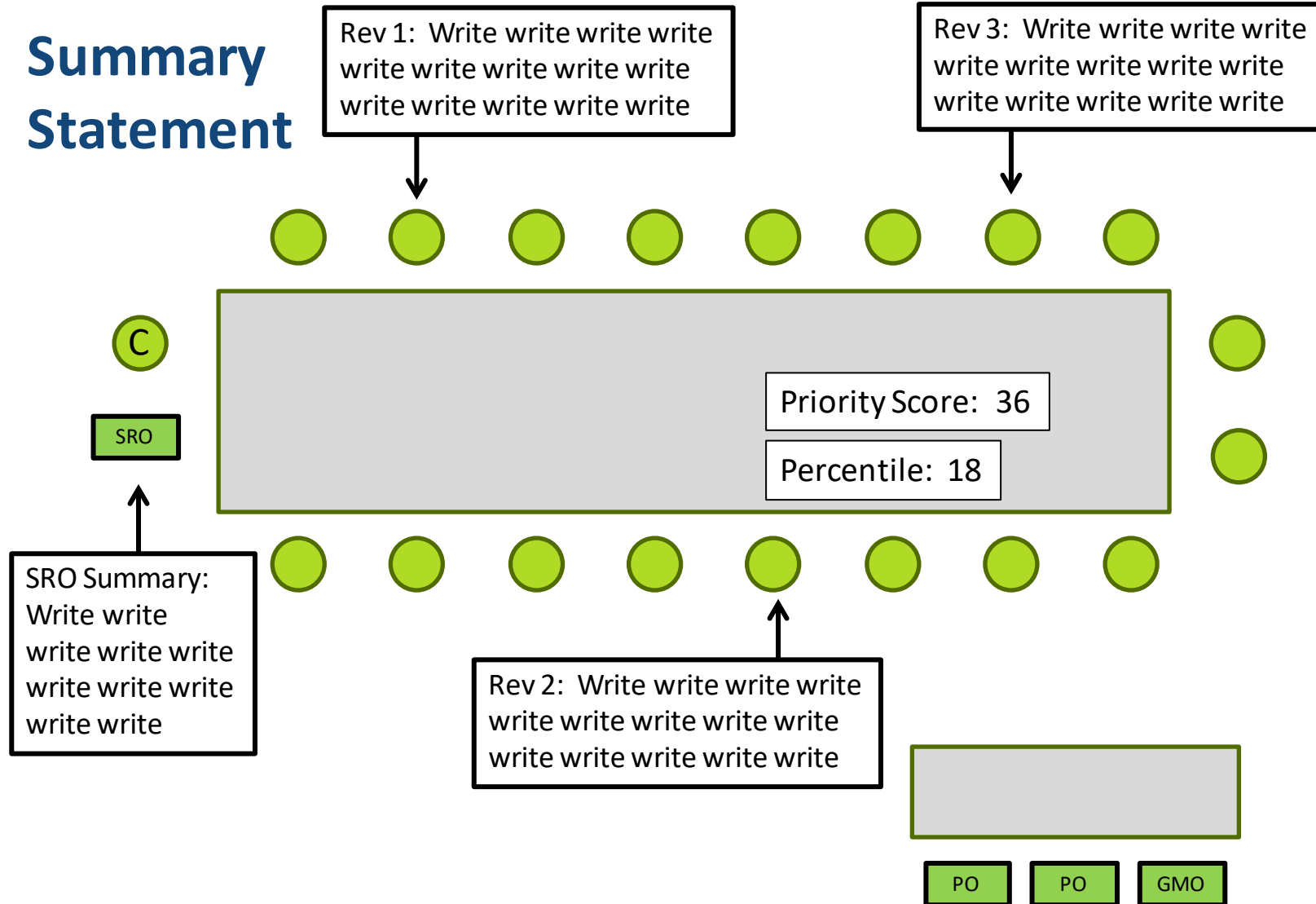
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SRO



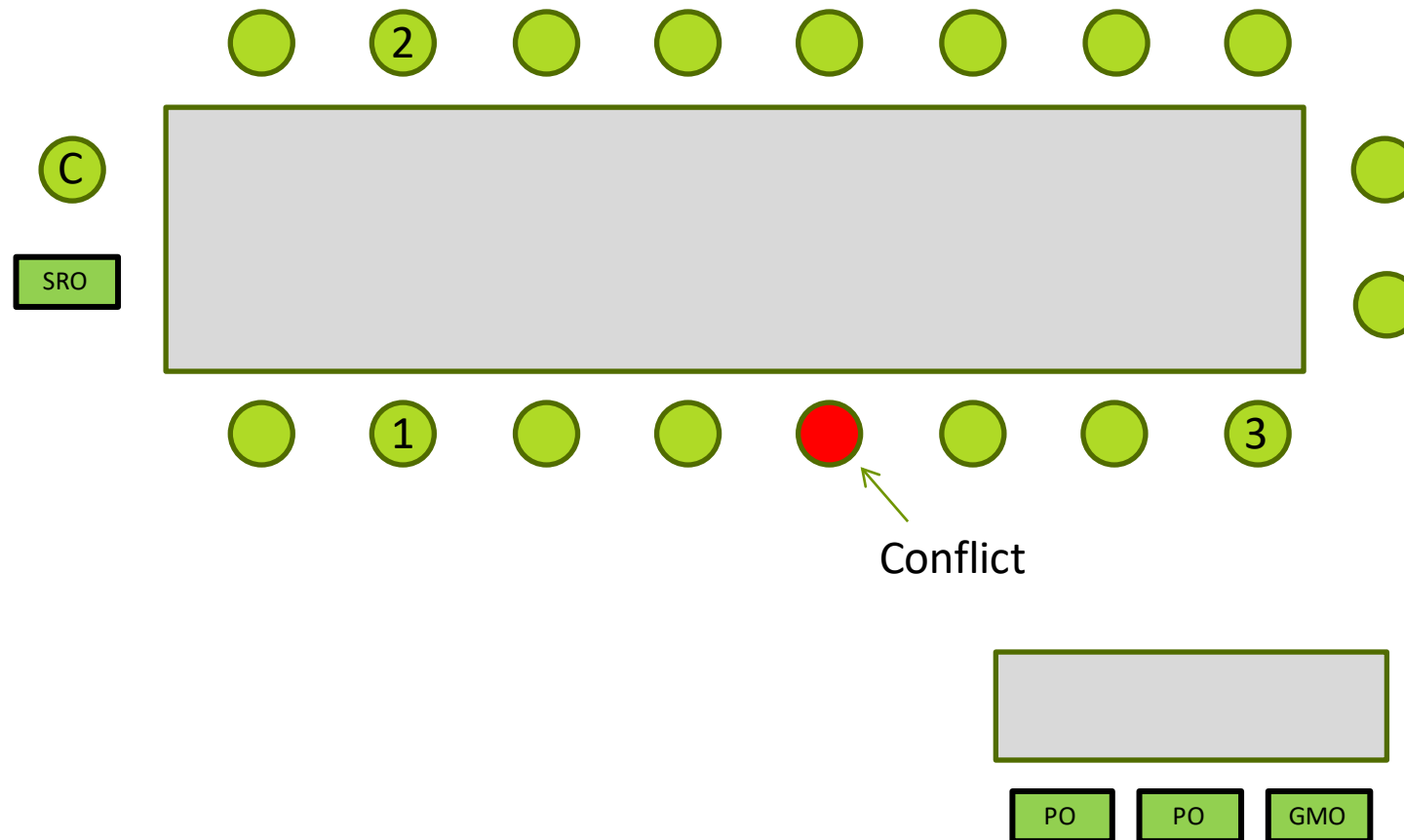
3
4

PO PO GMO

Summary Statement



Next Review

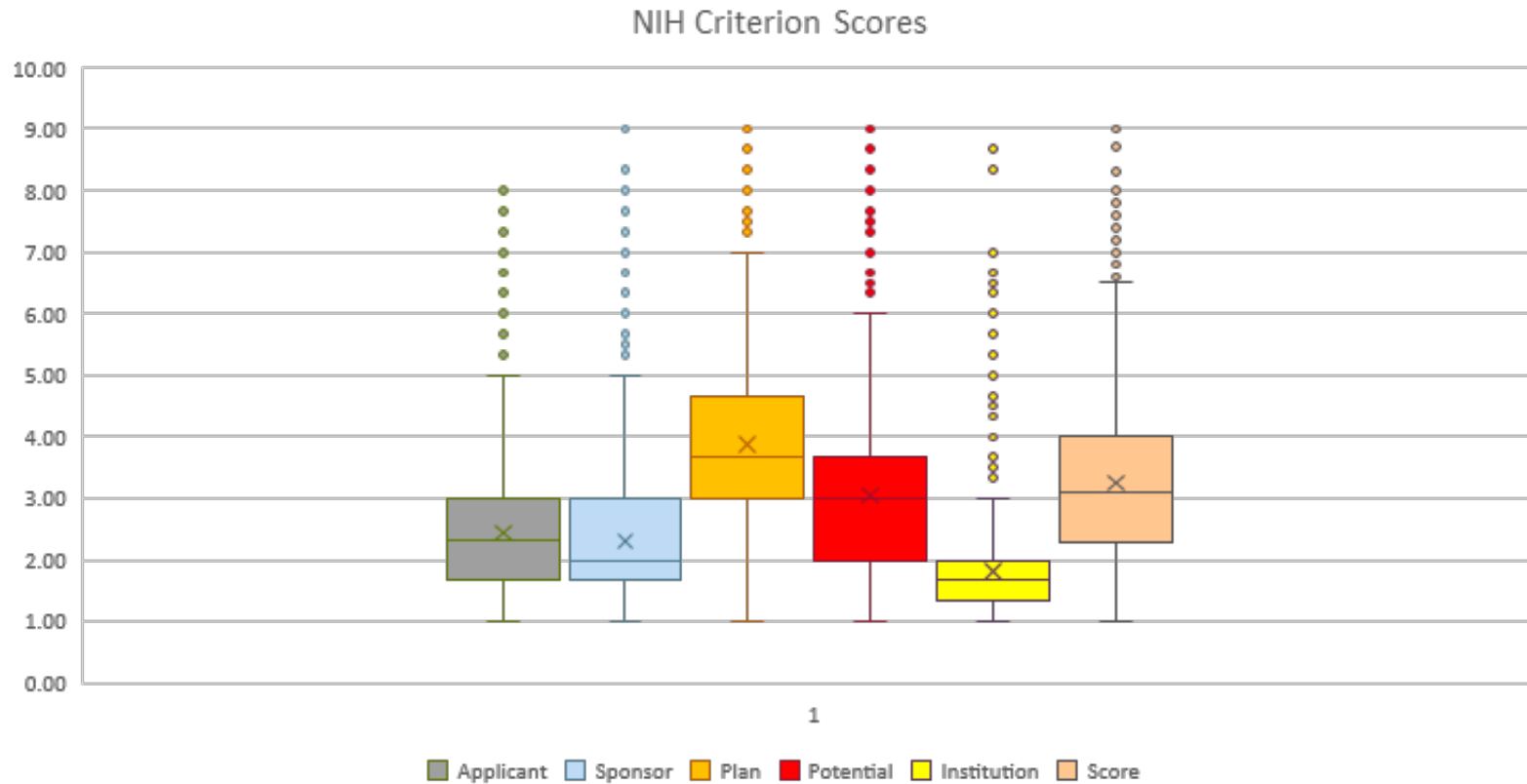


Final Score

- The Final Score is based on the criterion scores

Criteria	Rev 1	Rev 2	Rev 3
Fellowship Applicant	2	3	3
Sponsors, Collaborators and Consultants	2	3	2
Research Training Plan	5	5	4
Training Potential	4	5	3
Inst'l Environment & Commitment to Training	3	3	2
Average	5	5	4
Overall Average: 3	47	a Priority Score of 33	

Criterion Score Impact on Final Score



Summary Statement

- Scores for each review criterion (scale of 1-9)
- Critiques from assigned reviewers
- Administrative notes (if any)

Overall Impact or Criterion Strength	Score	Descriptor
High	1	Exceptional
	2	Outstanding
	3	Excellent
Medium	4	Very Good
	5	Good
	6	Satisfactory
Low	7	Fair
	8	Marginal
	9	Poor

- **If application is discussed you will also have:**
 - Overall impact/priority score and (sometimes) percentile ranking
 - Summary of review meeting discussion (written by Scientific Review Officer)
 - Budget recommendations

SUMMARY STATEMENT
(Privileged Communication)

Release Date: 11/06/2015

PROGRAM CONTACT:
Timothy Gondre-Lewis

[Redacted]

Application Number: 1 R01 AI117408-01A1

Principal Investigators (Listed Alphabetically):

LI, CHENGWEN PHD (Contact)

SAMULSKI, RICHARD J PHD

Applicant Organization: UNIV OF NORTH CAROLINA CHAPEL HILL

Review Group: GDD

Gene and Drug Delivery Systems Study Section

Meeting Date: 10/21/2015

RFA/PA: PA13-302

Council: JAN 2016

PCC: I2F

Requested Start: 04/01/2016

Dual IC(s): HL, DK

Project Title: Enhancing HIV-1 Transduction with Capsid Immune Evasion

SRG Action: Impact Score: 20 Percentile: 2

Next Steps: Visit http://grants.nih.gov/grants/next_steps.htm

Human Subjects: 10-No human subjects involved

Animal Subjects: 30-Vertebrate animals involved - no SRG concerns noted

Project Year	Direct Costs Requested	Estimated Total Cost
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4	[Redacted]	[Redacted]
5	[Redacted]	[Redacted]
TOTAL	[Redacted]	[Redacted]

ADMINISTRATIVE BUDGET NOTE: The budget shown is the requested budget and has not been adjusted to reflect any recommendations made by reviewers. If an award is planned, the costs will be calculated by Institute grants management staff based on the recommendations outlined below in the COMMITTEE BUDGET RECOMMENDATIONS section.



Resume and Summary of Discussion

RESUME AND SUMMARY OF DISCUSSION: The applicants propose to identify methods to prevent immune system clearance of hepatocytes transduced with adeno-associated virus (AAV) vectors by examining the role of empty capsids in the immune response, modifying AAV capsid antigen presentation and identifying new AAV vectors capable of avoiding the capsid-specific cytotoxic T lymphocyte (CTL) response through a directed evolution approach. The research was thought to be highly significant because of the importance of overcoming the immune response to AAV gene therapy for successful treatment of diseases such as hemophilia. The innovative concepts of exploring the CTL response and the role of empty capsids in the AAV immune response, thorough experimental plan and outstanding investigative team that includes a world leader in AAV gene therapy are among the other strengths of the application discussed by the panel. Questions were raised about the suitability of mouse models for identifying immune responses that will be relevant to humans. Reviewers disagreed about the necessity for testing multiple capsid mutants. Overall, reviewers agreed that the strengths outweigh the weaknesses and rated the application likely to have high impact on the field of AAV gene therapy.

DESCRIPTION: Adeno-associated virus (AAV) vector has been successfully applied in phase I clinical trials in hemophilia B patients with liver targeting. However, these studies have suggested that AAV capsid specific cytotoxic T lymphocytes (CTL) have the potential to eliminate AAV transduced



CRITIQUE 3:

Significance: 2
Investigator(s): 1
Innovation: 3
Approach: 3
Environment: 1

Overall Impact: This is a revised multiple Principal Investigator application with due modifications submitted by Dr. Chengwen Li. Here the investigators have proposed to tackle the issue of antigen cross-presentation which is a major limiting factor for successful gene therapy for liver diseases using AAV. The investigators have proposed to develop AAV mutants that will avoid capsid ubiquitination and proteasomal degradation thereby decreasing AAV capsid antigen presentation and possibly minimizing CTL-mediated elimination, thereby leading to enhanced hepatocyte transduction. The mechanism of capsid antigen presentation from empty virions and full AAV particles will be elucidated using TAP^{-/-} and Cat S^{-/-} mice. Further, the investigators will explore directed evolution and rational design strategy to isolate AAV vectors with preferential hepatotropism and their ability to evade capsid specific CTL response in humanized mice. If successful, it will enable the development of potentially safer AAV vectors for hepatic gene therapy.

1. Significance:

Strengths

- Gene therapy using current AAV vectors suggest that capsid-specific CTLs eliminate AAV transduced hepatocytes thereby leading to suboptimal results. Therefore, the proposed strategy to develop new AAV capsids that bypass the host immune response is exciting.

Weaknesses

- Although TAP^{-/-} and Cat S^{-/-} are very useful to determine molecular mechanisms involved in



How is your Application Reviewed?

Check the Funding Opportunity Announcement (FOA)!!

Section V. Application Review Information

1. Criteria

Only the review criteria described below will be considered in the review process. As part of the [NIH mission](#), all applications submitted to the NIH in support of biomedical and behavioral research are evaluated for scientific and technical merit through the NIH peer review system.

For this particular announcement, note the following: Reviewers should evaluate the candidate's potential for obtaining a tenure-track or equivalent faculty position and developing an independent research program that will make important contributions to the field. Reviewers should consider in their evaluation the likely value of the proposed K99 phase research and career development in facilitating transition to research independence, and the feasibility of the proposed research project as a vehicle for developing a successful, independent research program after transition to the R00 award phase.

Overall Impact

Reviewers should provide their assessment of the likelihood that the proposed career development and research plan will enhance the candidate's potential for a productive, independent scientific research career in a health-related field, taking into consideration the criteria below in determining the overall impact score.

Scored Review Criteria

Reviewers will consider each of the review criteria below in the determination of scientific merit, and give a separate score for each. An application does not need to be strong in all categories to be judged likely to have major scientific impact.

Candidate

- Based on the candidate's prior research and training experience, track record, referee's evaluations, and the quality and originality of prior research and the current application, what is the candidate's potential to become a highly successful, independent investigator who will contribute significantly to his/her chosen field of biomedical, behavioral, or clinical related research?
- Considering the years of postdoctoral research experience to date, what is the candidate's record of research productivity, including the quality of peer-reviewed scientific publications?
- What is the quality of the candidate's pre- and postdoctoral research training, with respect to development of appropriate scientific and technical expertise?
- Given the candidate's prior training, proposed career development plan, and the referees' evaluations, is it reasonable to expect that the candidate will be able to achieve an independent, tenure-track or equivalent faculty position within the time period requested for the K99 phase of this award?

Fellowship Training: Main Review Criteria

- **Overall Impact:**

Assessment of the likelihood that the **fellowship training** will enhance the candidate's potential for, and commitment to, an independent, productive scientific research career in a health-related field, in consideration of the **5 Scored Review Criteria** and **Additional Review Criteria**, if relevant.



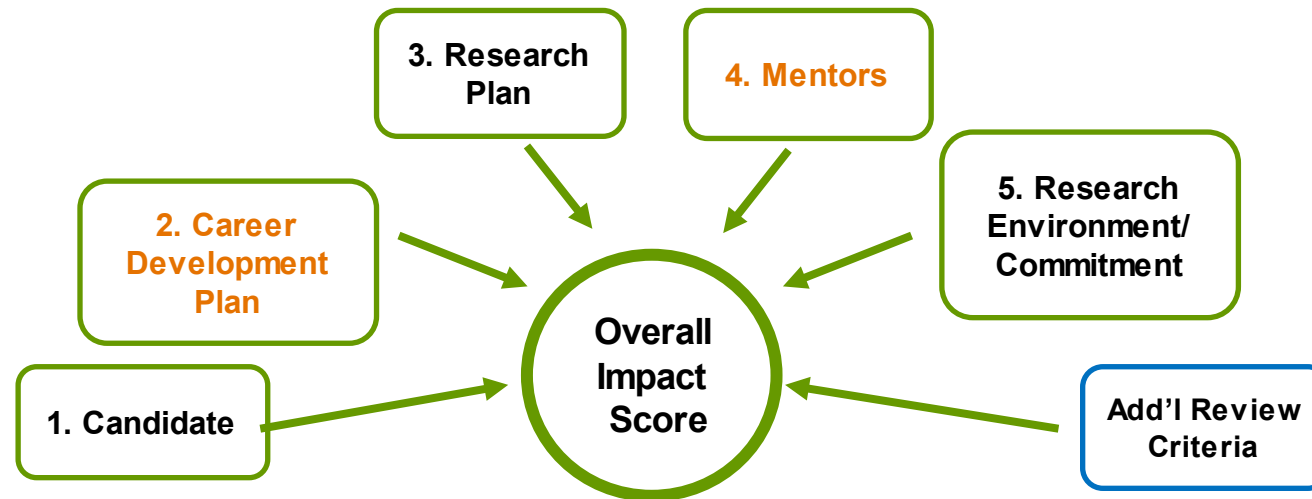
Training in responsible Conduct of Research
Select Agent Research

Resource Sharing Plans
Authentication of Key Bio or Chem Resources

Career Development (K awards): Main Review Criteria

- **Overall Impact:**

Assessment of the likelihood that the **proposed career development and research plan** will enhance the candidate's potential for, and commitment to, an independent, productive scientific research career in a health-related field, in consideration of the **5 Scored Review Criteria** and **Additional Review Criteria**, if relevant.



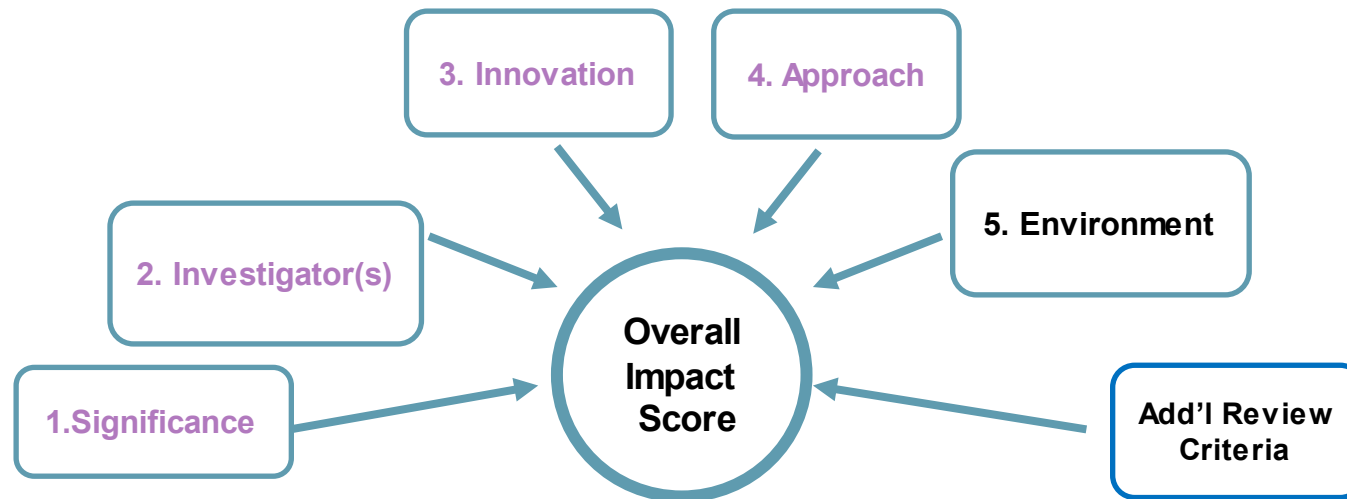
Training in responsible Conduct of Research
Select Agent Research

Resource Sharing Plans
Authentication of Key Bio or Chem Resources

R-Type Grant Applications: Main Review Criteria

- **Overall Impact:**

- Assessment of the likelihood for the **scientific project** to exert a sustained, powerful influence on the research field, in consideration of the **5 Scored Review Criteria** and **Additional Review Criteria**, if relevant.



What Makes a **Strong** Candidate?

- Publication record: not just # but relevance
- Excellent training
- Research and career plans build on training
- Uniquely positioned for proposed research
- Strong potential to succeed in an independent research career

What Makes a **Weak** Candidate?

- Limited pubs as first author
- Pubs are unrelated to stated area of interest or research proposal
- Limited research presentations (suggests weak communication skills)
- Limited demonstration of potential for independent research
- Little evidence of leadership skills
- Already achieved research independence- no need for further mentored training

What Makes a **Strong** Career Development Plan?

- Logical, systematic, and appropriate for career stage
- Candidate will gain needed expertise
- Specific courses and experiences are outlined which complement the research plan – be explicit!
- Will enhance communication skills and professional development
- Includes grant writing and laboratory management skills

What Makes a **Weak** Career Development Plan?

- Research too close to mentor's, not clear how will develop independent career
- Not clear how the career development plan differs from postdoctoral experience
- Mentor's input into plan not apparent
- No training in grant writing or laboratory management

What Makes a **Strong** Mentor?

- Outstanding scientist
- Excellent plan to facilitate transition
- Successfully mentored other trainees
- Consultants/collaborators are in appropriate areas

What Makes a **Weak** Mentor?

- Evident lack of input into application
- May be overcommitted (lack of time commitment to trainee)
- Lack of definitive mentoring plan
- Lack of accomplishments by former trainees
- Lack of appropriate consultants/collaborators

What Makes a **Strong** Environment?

- Appropriate laboratory space/equipment (research env)
- Institutional commitment to candidate
- Appropriate letters of support

What Makes a **Weak** Environment?

- Lack of facilities/resources (research env)
- Lack of institutional commitment
- Vague, “canned” letters of support
- Lack of letters of support from needed collaborators

Ask the right person for help:

- **BEFORE you submit**
 - Program Officer
 - **Scientific Review Officer** (both noted on RFA)
- **AFTER you submit** (but before review)
 - **Scientific Review Officer**
- **AFTER review**
 - Assigned Program Officer



Check the status of your app in eRA Commons

Status Information

Status (indicated by a yellow arrow pointing to the 'Status' field)

General Grant Information		Other Relevant Documents	
Status:	Scientific Review Group review pending. Refer any questions to the Scientific Review Administrator.	e-Application	
Institution Name:		Additions for Review (0 documents)	
School Name:		Correspondence	
School Category:		Referral	
Division Name:	NONE	Date	Description
Department Name:			
PI Name:			
Application ID:			
Proposal Title:			
Proposal Receipt Date:	10/18/2013		
Last Status Update Date:	10/31/2013		
Current Award Notice Date:			
Application Source:	Grants.gov		
Project Period Begin Date:	08/01/2014		
Project Period End Date:	07/31/2017		
eApplication Status:	Submission Complete		
FOA:	[PA13-313] - Academic Research Enhancement Award (Parent R15)		
NIH Appl. ID:			

Status History		Institute or Center Assignment	
Effective Date	Status Message	Institute or Center	Assignment
10/21/2013	Application entered into system		10/28/2013
		NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (Primary)	10/21/2013
		NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (Primary)	10/28/2013

Application Information		Study Section		Advisory Council(AC) Information	
Award Document Number:	RNS088123A	Scientific Review Group:	ZRG1 MDCN-R (86)		
FSR Accepted Code:	N	Council Meeting Date(YYYY/MM):	2014/05		
Snap Indicator Code:		Meeting Date:	03/06/2014		
Impact Score:		Meeting Time:	08:00		
Percentile:		Study Roster:	View Meeting Roster		
Early Stage Investigator Eligible:					

Meeting Date (indicated by a yellow arrow pointing to the Meeting Date field)



NIH has a ton of good information online...

https://grants.nih.gov/grants/about_grants.htm

<https://www.niaid.nih.gov/grants-contracts/apply-grant>

<https://public.csr.nih.gov/ForApplicants>

Feel free to reach out to me!

Laura.Thomas@nih.gov

Living the *Academic* Dream: One scientist's perspective

Aishwarya Prakash, Ph.D

Associate Professor

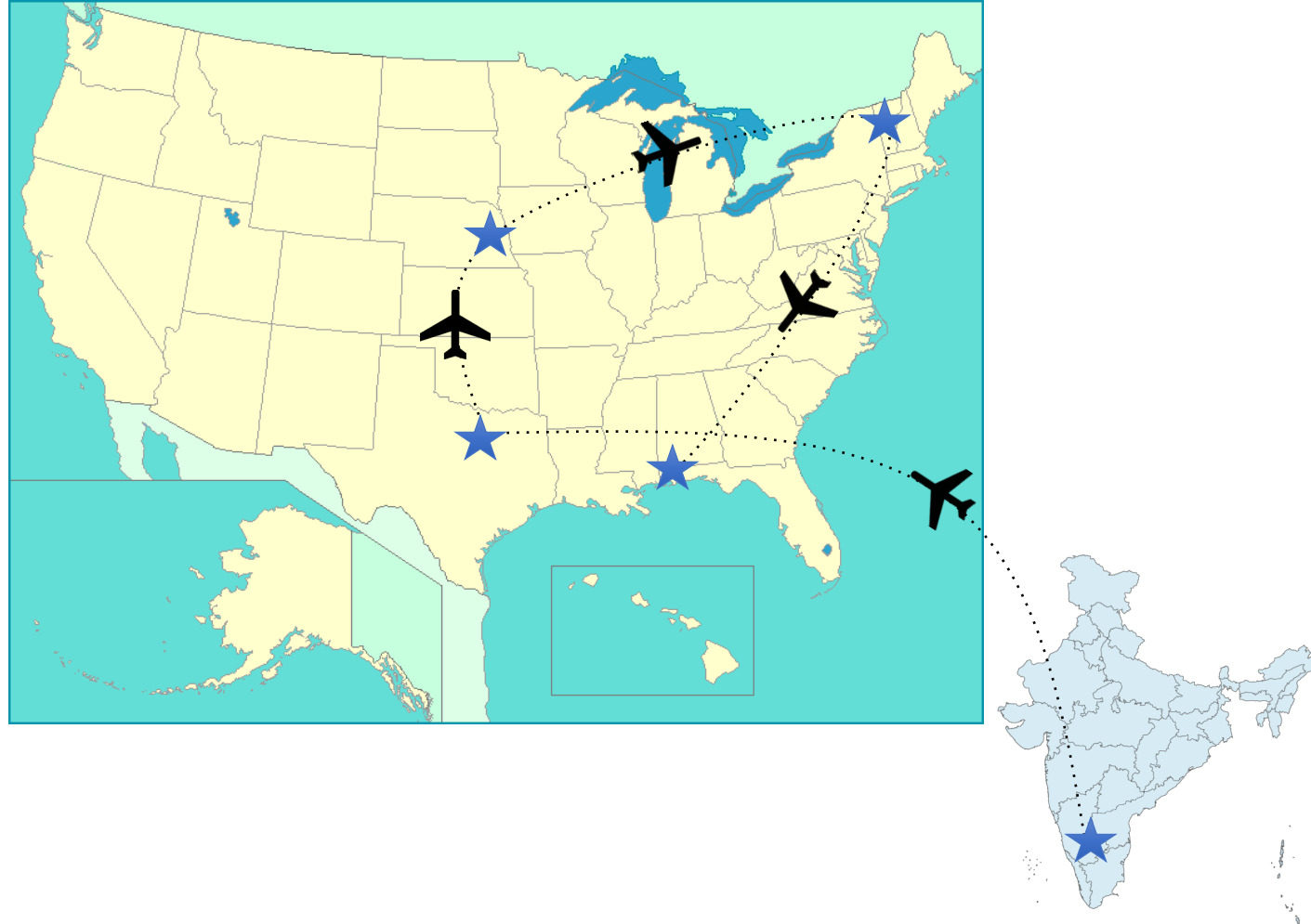
University of South Alabama

Department of Biochemistry and Molecular Biology

Outline

- My Education/Scientific Pathway
- The *Academic* Dream
- Navigating the Grant Process as an Early-Stage Investigator
- What happens next?
- Living the Dream

My Education/Scientific Pathway



The Academic Dream

Finding an Independent Faculty Position

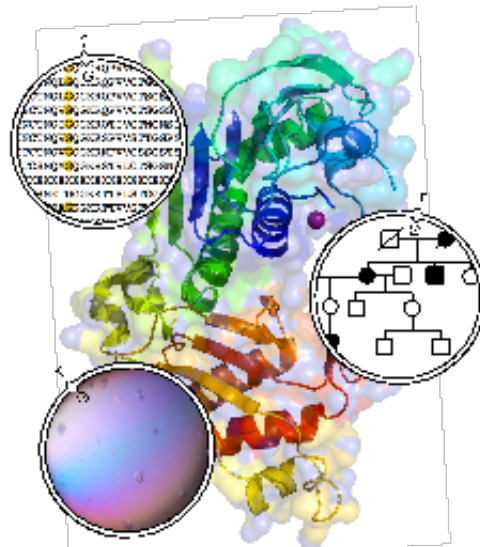
Personnel



Teaching



National Institutes of Health



High-quality Publications

D'Arcy et al, 2019, Human Mutation



Extramural Funds

Start-up Funds

Navigating the Grant Process as an Early-Stage Investigator

Know:

- **your requirements for Promotion and Tenure**
 - Faculty affairs handbook/ bylaws etc.
- **your Office of Sponsored Projects contact person**
 - How far in advance does your proposal have to be internally routed?
- **how to identify funding opportunities best suited to YOU and YOUR research**
 - Contact NIH program officials to determine grant fit and suitability
 - Budgeting people vs. research materials
- **how to distinguish your science from collaborative science**

Identifying the funding that's right for ME!



Federal

- NIH, DoD, DoE, NSF, etc.

Non-Profit

- American Cancer Society, Mary Kay Foundation, etc.

Industry

- Pfizer, Genentech, etc.

Foreign

Grantsmanship as a novice: My experience

- **Make an outline**
- The Aims page can change until the hour before submission (this is OK!)
- Get other folks involved early on (collaborators, letters of support, mentors/ colleagues to critique)
- Preliminary data (set goals and plans for the lab early on, so that everyone is on the same page)
- Write edit write (repeat)

Navigating the Grant Process as an Early-Stage Investigator: Dealing with Rejection

Every grant writer experiences rejection: You are not alone!

“A good idea is no guarantee of grant success.”

“Work towards a portfolio of activities.”

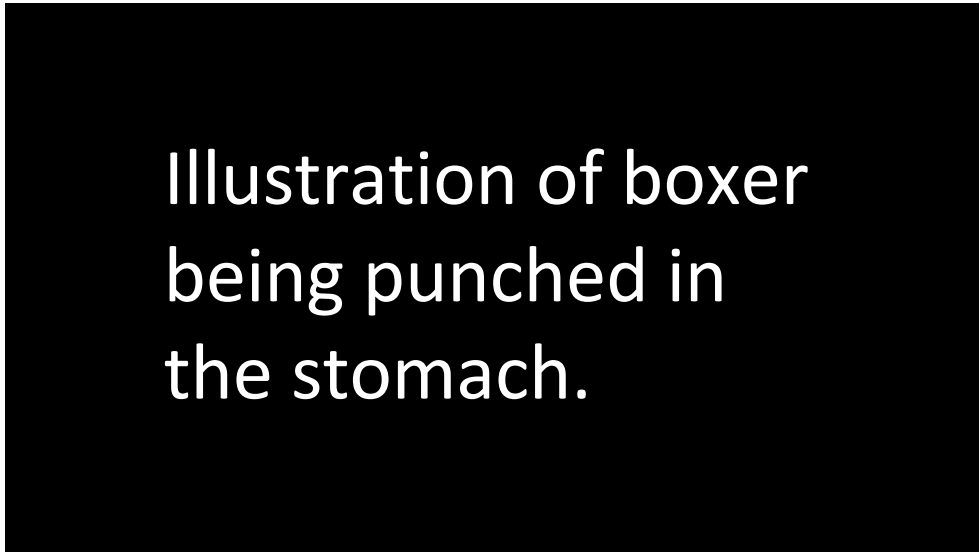
A black rectangular box containing white text. The text reads: "Illustration of boxer being punched in the stomach." This is a reference to a common meme image of a boxer being punched in the stomach.

Illustration of boxer being punched in the stomach.

“It is the exception to get funded, not the rule.”

“Give yourself time.”

Share your setback – Misery loves company, right?

Nature: Career Feature. What to do when your grant is rejected? Feb 2020

<https://www.archdaily.com/890493/how-to-survive-a-creative-gut-punch-and-accept-negative-feedback>

Navigating the Grant Process as an Early-Stage Investigator: Dealing with Acceptance

Congratulations! Your proposal was funded! Now for the easy part...

“Express Gratitude.”

“Read the funding award guidelines and requirements.”



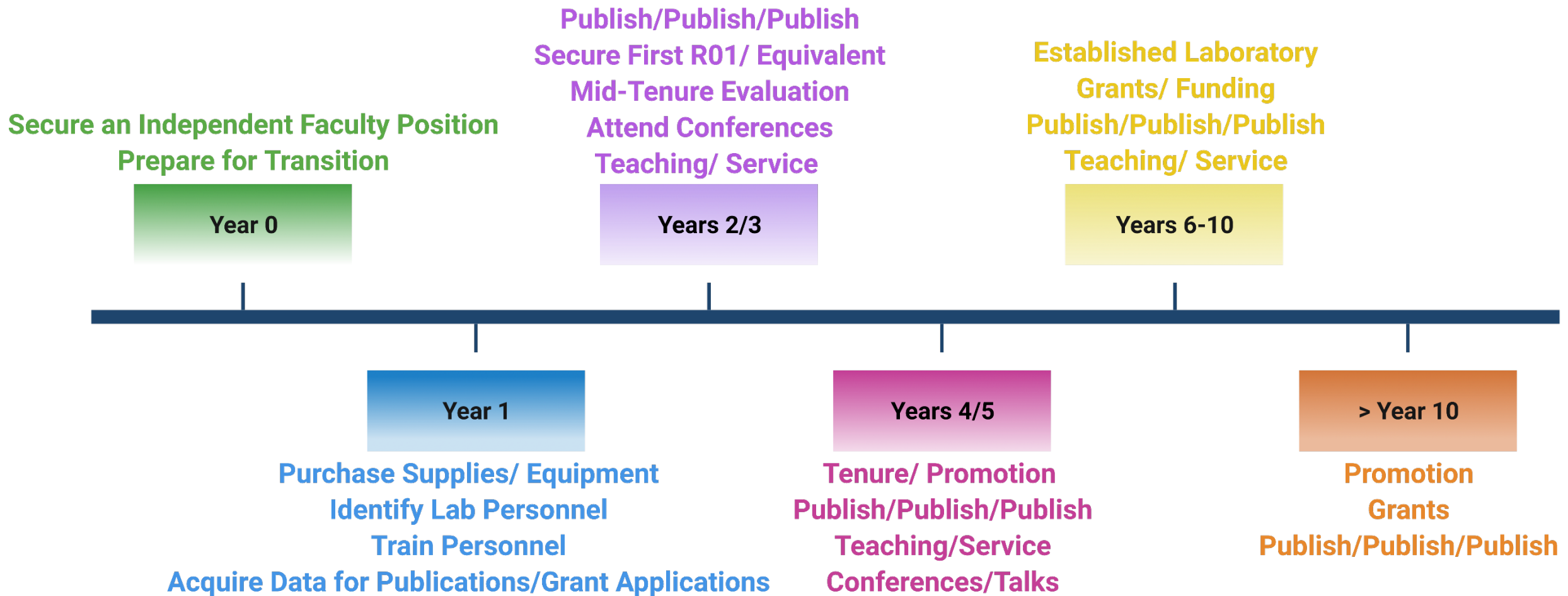
<http://whyopenresearch.org/funding>

“Manage/ budget your funds.”

Do good science and publish your results and get ready for the next grant application!

“Give yourself time. It is the exception to get funded, not the rule.”

What happens next?



Living the Dream: What does this look like for
me?

DREAM. Do. DOCUMENT.

Prakash Lab: Research and Funding

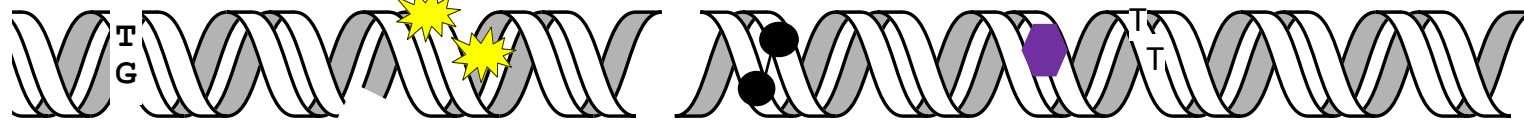
Reactive Oxygen Species



X-rays
Ionizing Radiation
Anti-tumor Drugs

UV Light

Replication Errors

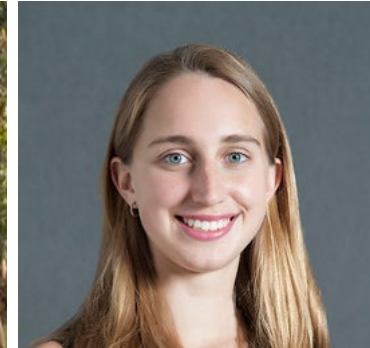


Mismatch Repair
(MMR)

Excision
Repair (BER,
SSBR)

Recombinational
Repair (HR, NHEJ)

Nucleotide Excision
Repair (NER)



Lynch syndrome/ MMR

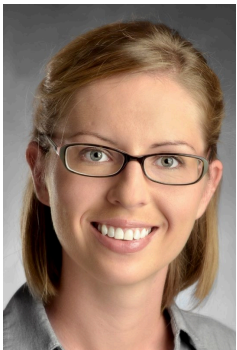
BER Crew

USA HEALTH
MITCHELL CANCER INSTITUTE

Collaborations and their importance



Dr. Joann Sweasy
U. of Arizona
DNA Repair & Lupus



Jessa Blount
Circulogene theranostics
Lynch Syndrome



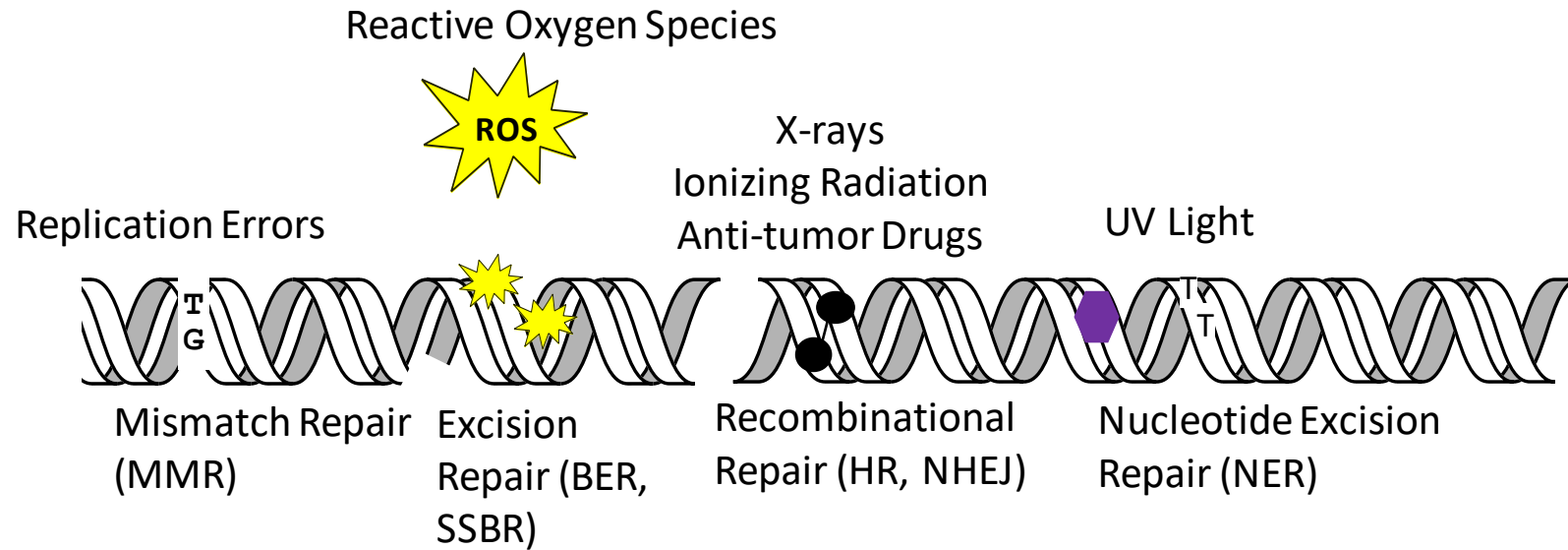
Dr. Gary A. Piazza and Alex Coley
U. of South Alabama/Auburn University
Pan Ras Inhibitors



Drs. Richard Honkanen and Mark Swingle
U. of South Alabama
Inhibition of PP5



PRAKASH LAB FOCUS: DNA Repair



Dr. Robert W. Sobol Jr.
U. of South Alabama
BER/MMR

Acknowledgements

Prakash Laboratory (Current and Past)

Nidhi Sharma, Ph.D.

Brandon M. D'Arcy, Ph.D.

Jennifer Arrington

Marlo Thompson

Vandana Sood, Ph.D.

Alex Coley

Dava Mackensie Terry

Caleb Lange (past Technician)

Justin Weisman (past Undergrad)

Monica Pasala (past Undergrad)

Collaborators:

- Jessa Blount, MS, CGC (Circulogene)
- Joann Sweasy, Ph.D. (U. of Arizona)
- Srinivas Chakravarthy, Ph.D. (APS)
- Robert W. Sobol, Ph.D. (USA)
- Sachin Pai, M.D. (USA)
- Richard Honkanen, Ph.D. (USA)
- Gary Piazza, Ph.D. (Auburn U.)
- Glen Borchert, Ph.D. (USA)



Current & Past Funding:

NIEHS: R00-ES024417; ONES R01-ES030084

NIEHS: R35 Subcontract R35-ES031708 to Dr. Joann Sweasy

- Mitchell Cancer Institute, Start up Funds & post-doc fellowship to Brandon D'Arcy
- Center for Clinical and Translational Science, UAB

Making Grant Writing a Hobby

Lauren Aleksunes, PharmD, PhD
Rutgers University





UCONN
SCHOOL OF PHARMACY

hhmi

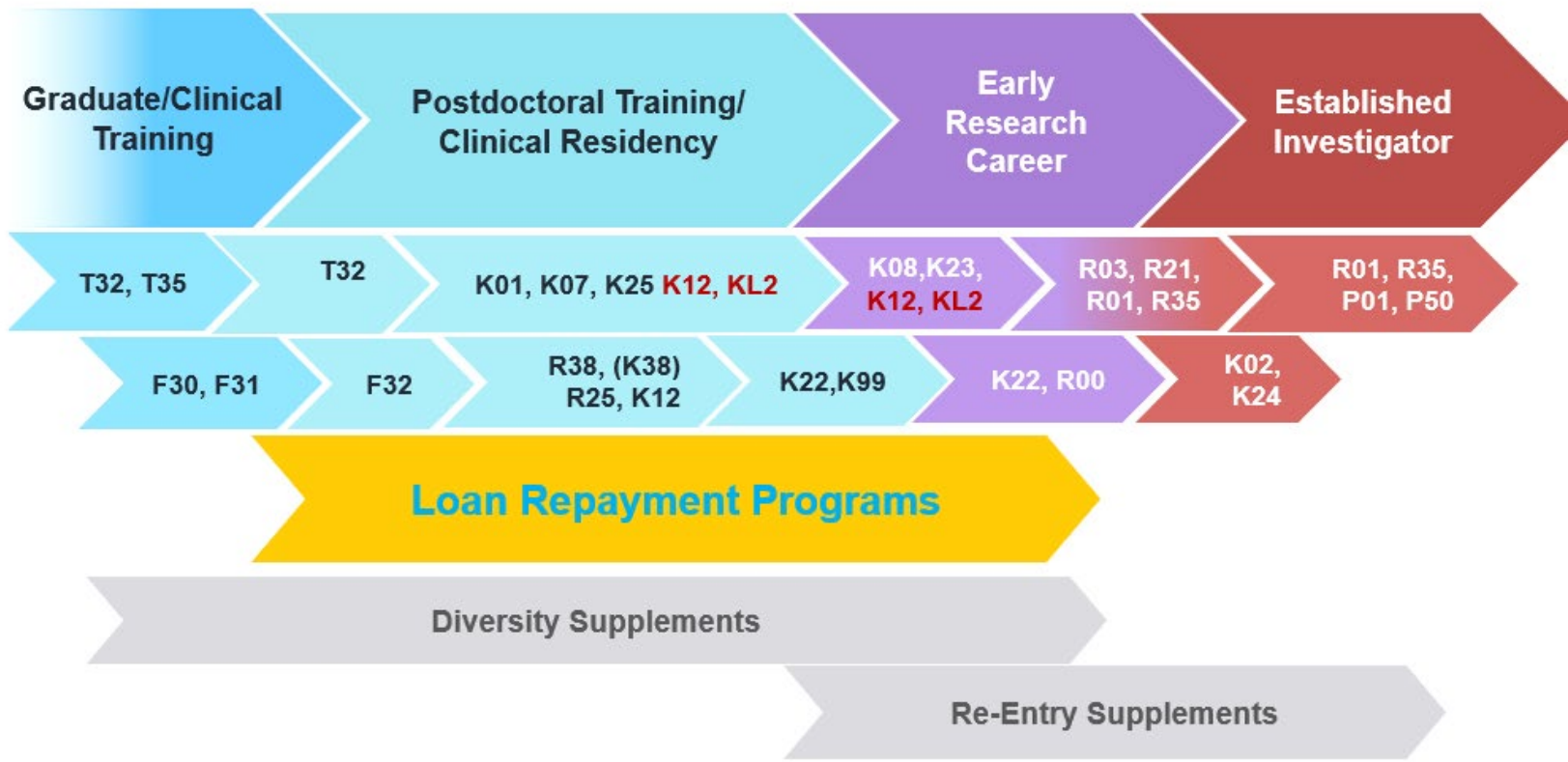
Howard Hughes
Medical Institute

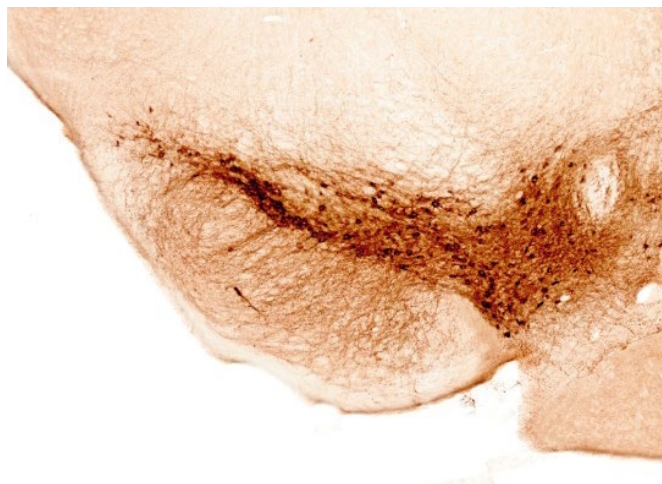
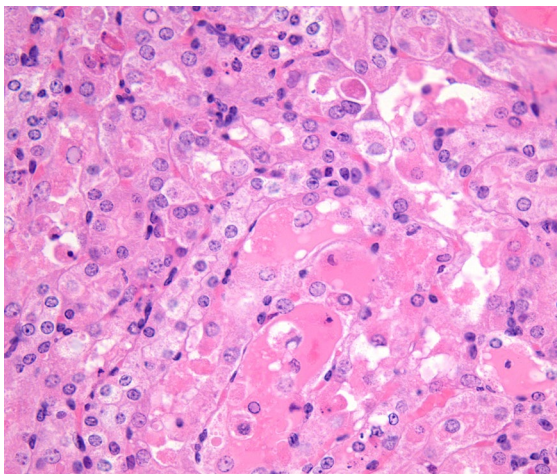
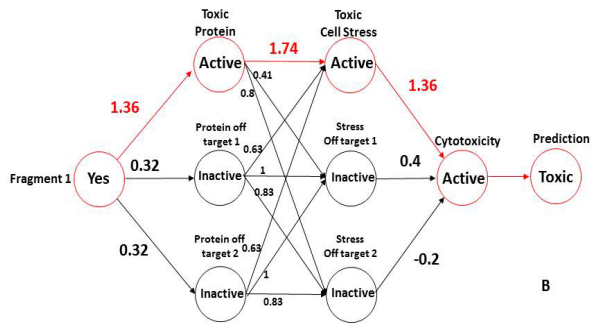
KU

MEDICAL
CENTER

The University of Kansas

Start Early





Diversify Your
Research Areas



NIDDK

My K99/R00



NIEHS

My 1st R01
(And Others)



NIGMS

My Current
R01

Diversifying Research Areas Opens Funding Opportunities



NIH Grants
4.07K subscribers



Podcast

<https://grants.nih.gov/news/virtual-learning/podcasts.htm>

Where Do I Start?

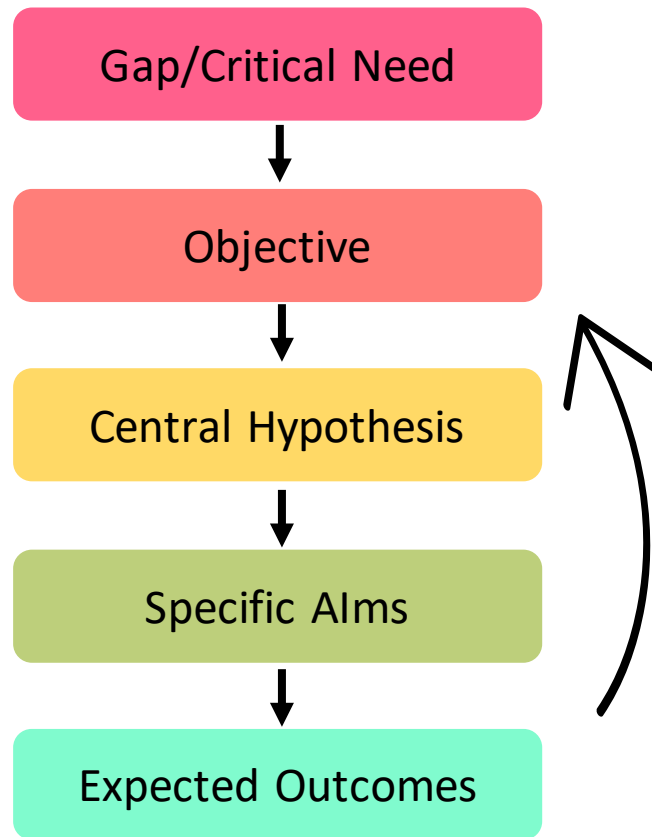


Pitfall to Avoid: Overly Ambitious

Hone Your Sales Skills



Your New
Hobby:
Specific
Aims Pages





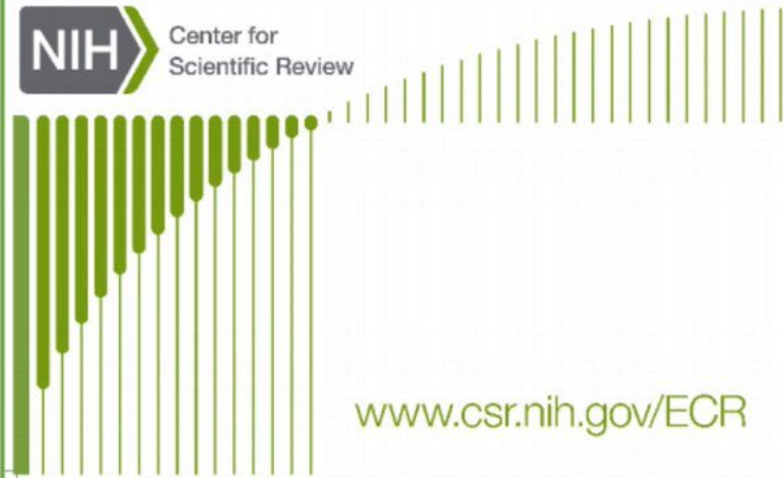
The University of Utah Grant Writing Coaching Groups Study

Are you an early stage researcher ready to write a new or revised NIH-style proposal and interested in receiving coaching support while you write? If so, we invite you to apply for participation in the University of Utah Grant Writing Coaching Research Study, funded by the NIH Common Fund (grant U01 GM132366; administered by the NIGMS). This study will compare variations of an established grant writing group coaching process to identify features that influence its effectiveness.





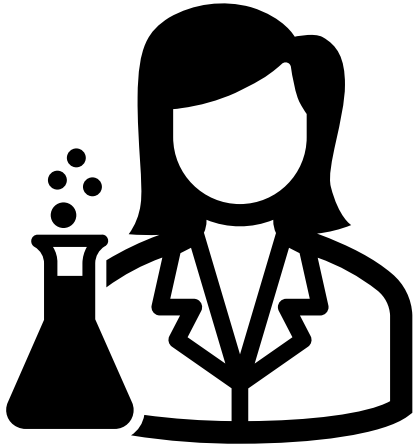
Center for
Scientific Review



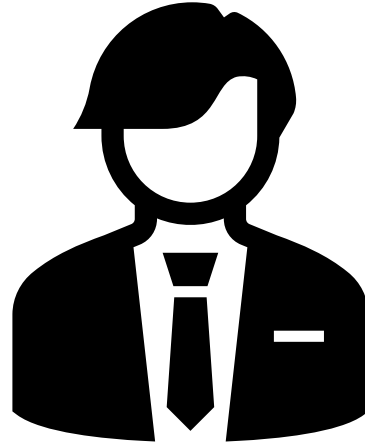
www.csr.nih.gov/ECR

Jumpstart Your Career

**Join the NIH Early Career
Reviewer Program**



“The Expert”



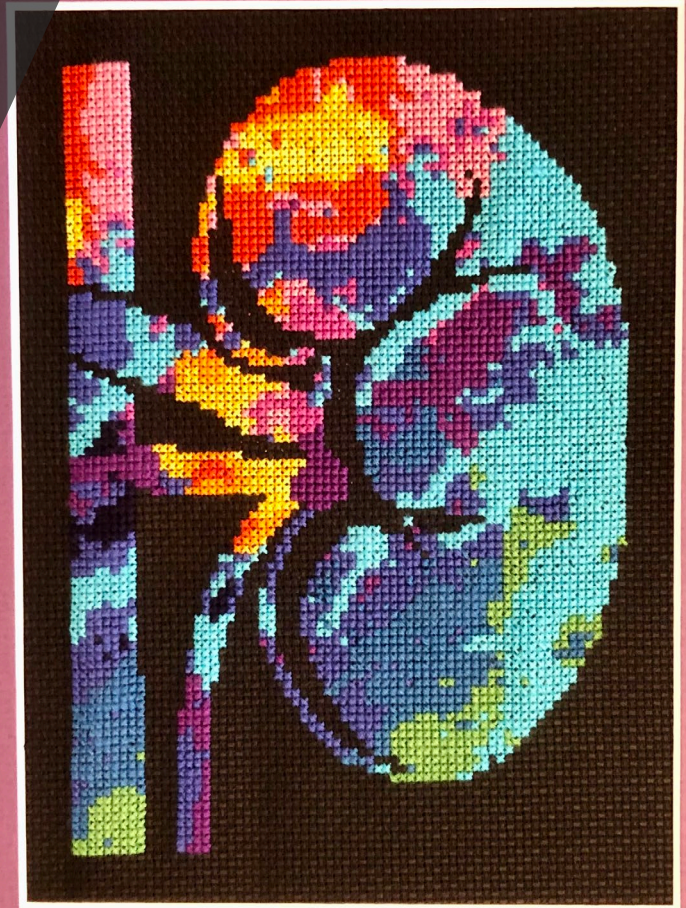
“The Generalist”



“The Perfectionist”

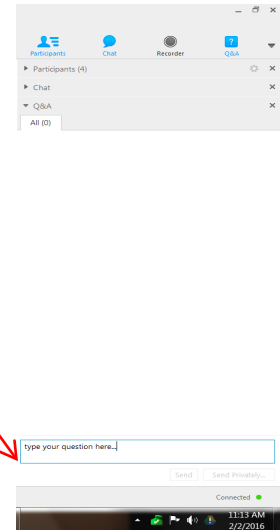
Who Reads My Grants?

Any
Questions?



Questions...

If you have a question or comment, please use the “Q&A” function on the right side of your screen.



11th Triennial Salary Survey

SOT Full and Associate members were sent an email on May 5 with a link to the survey; please email [SOT Headquarters](#) to request that the link be resent to you if needed. The survey will be open until May 31, 2021.

This spring, you will receive the link to the 10 min survey!
Your input is valuable!

The published results are beneficial to you!

- ◆ Identifies pay standards and inequities amongst toxicologists
- ◆ Tool for negotiating salary, benefits and promotions
- ◆ Insight for attracting best talent and support for diversity and inclusion efforts
- ◆ Assists with career planning - higher education, certification, changing employers, sectors or disciplines
- ◆ Informs SOT and other societies of underemployment and helps with the design of education and career development programs

Thank you for participating!

- ◆ Webinar recording will be available on the SOT website.
- ◆ Additional resources mentioned in the webinar chat:
 - <https://www.youtube.com/channel/UC1ZUJIWDF-3ItBo8301YF-A>
 - <https://public.csr.nih.gov/ForReviewers/BecomeAReviewer/ECR>
 - <https://grants.nih.gov/news/virtual-learning/podcasts.htm>