Cancer Immunology Funding Opportunities: Strategies for Early Career Scientists

Lillian Kuo, Ph.D.
Program Director, Division of Cancer Biology, NCI
*Email: **Lillian.Kuo@nih.gov**; Twitter: **@NCICancerBio***

NIH NATIONAL CANCER INSTITUTE

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NIH Grant Strategies for Early Career Scientists

1. Elements of an R01 application
2. ESI specific considerations and opportunities
3. Cancer immunology funding opportunities

Warning: This information is generalized and not comprehensive. Please contact your Program Officer for individual-level guidance.

Draft Your Specific Aims Page

- Make a good first impression, the Specific Aims page is read first
- A central hypothesis will anchor your Specific Aims to a common scientific question or objective
- Better to have depth over breadth
- Specific Aims should be complementary and not inter-dependent
- Share your draft Specific Aims page with mentors, colleagues, co-investigators, collaborators, and your Program Officer

Draft Your Specific Aims Page (cont'd)

Know your audience, the scientific peer-review panel:

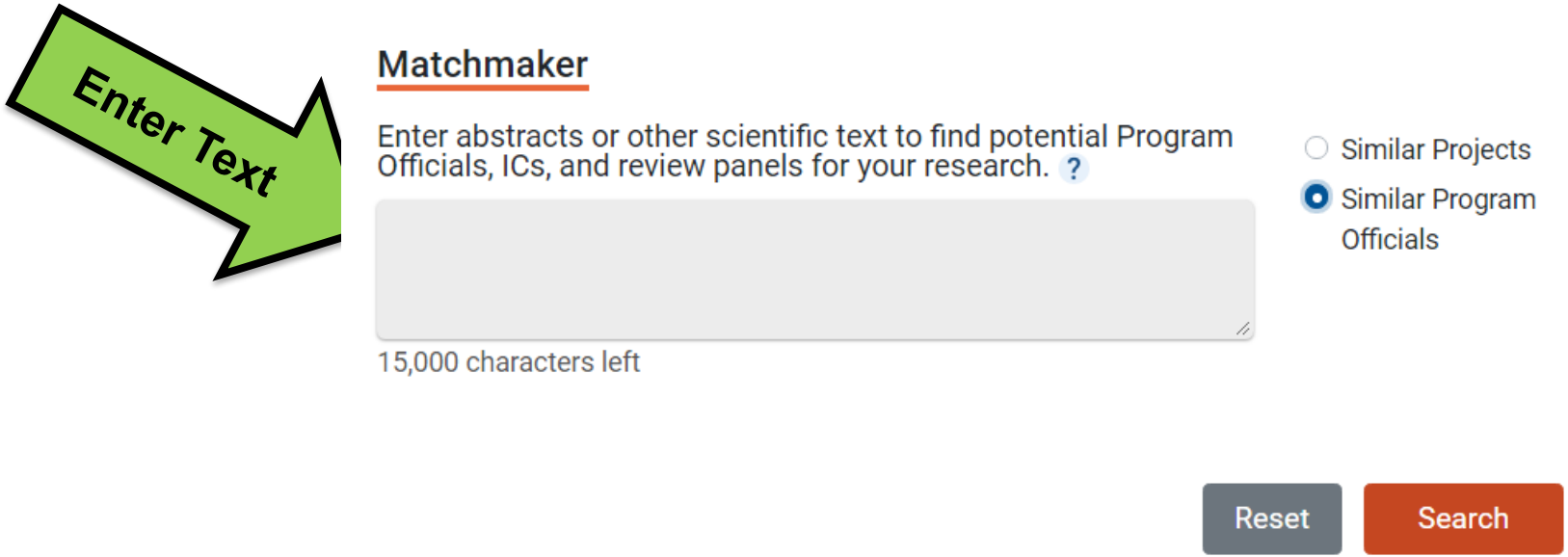
- Would they review the proposed project as tackling an important problem in a significant field?
- Would they view the Specific Aims as capable of opening up new discoveries in the field?
- Would the reviewers regard the work as new and unique?
- Would they view the Specific Aims as likely to exert a significant influence on the research field(s) involved?
- Are the Specific Aims written clearly and are they easy to understand?

How Can Your Program Officer Help You?

- **Before submission:**
  - Planning, help in identifying NOFO, NOFO special requirements, policies, updates, etc.
  - Scientific priorities, science of proposed research
- **After review:**
  - Interpreting the summary statement
  - Advise on next steps
  - Issues that need to be addressed with JIT
- **After the award:**
  - Annual progress report monitoring (RPPR), changes to grant, carryover, supplements
  - Scientific advances, trends, advocate for science area

Contact Your Program Officer/Director

https://reporter.nih.gov/matchmaker



Two Key Elements for a Successful Application

1. **Important Scientific Topic:** Significant, novel, innovative science and question under study

2. **Good Grantsmanship:** Effective scientific communication

Tips for Preparing Your Application

Read the instructions

Never assume reviewers will know what you mean

Refer to relevant literature

Don’t overstate the significance of your research

Build rationale to support proposed studies

Include well-designed tables and figures

Present a clear, organized write-up

Don’t be overly ambitious

Ask your colleagues to read and provide feedback

Developing Your Research Strategy

- Structure: Significance, Innovation, or Approach
- Significance: How will my research move the field forward
- Innovation: Both conceptual and technical
- Approach:
  - Your experimental design should tie back to your overarching hypothesis and specific aims
  - Avoid writing a list of experiments, instead provide a roadmap to how you will test your hypothesis and specific aims
  - As you write the approach, reevaluate your hypothesis, aims, and title to make sure they are cohesive and reflect the scientific goals

Grant Application vs. Research Publication

Prospective Mindset

Retrospective Mindset

Tip: Develop the appropriate writing skill set for grant applications and publications

Early Stage Investigator (ESI) Status

- Early Stage Investigator (ESI) and New Investigator (NI) are different designations
- Different NIH Institutes (ICs) have different policies on ESI vs. NI
- You can request an **extension** (e.g., COVID lab shutdowns) to your ESI eligibility period through eRA Commons via an ESI Extension request button in the Education section of your Personal Profile.
- Detailed info available at **NOT-OD-19-125:** https://grants.nih.gov/grants/guide/notice-files/NOT-OD-19-125.html

Katz ESI R01 PARs

- Stephen I. Katz Early Stage Investigator Research Project Grant PARs:
  - **PAR-24-075**: R01 Clinical Trial Not Allowed
  - **PAR-24-076**: R01 Basic Experimental Studies with Humans Required
- **New research direction**
  - Level of departure from previous efforts will be field-dependent
  - Should not be incremental advancement/expansion/extension of previous research
- **No preliminary data allowed**
  - Unpublished data not allowed
  - Only published (or preprint) data with unambiguous Digital Object Identifier (DOI)
- Questions? Email Scott Rogers, rogerssc@mail.nih.gov

NIAID New Innovators Award (DP2)

- The NIAID New Innovator Award supports **postdoctoral** and other candidates in **non-independent positions** or **newly independent Early Stage Investigators** of exceptional creativity who propose novel, original and insightful research concepts with the potential to produce a major impact, test scientific paradigms, or advance key concepts on broad, important problems in biomedical research of priority to NIAID
- The purpose of the NIAID DP2 is two-fold: Research Focus and Person Focus
  1. **Research Focus**: To support creative, novel, high-impact research that may be risk or at a stage too early to fare well in traditional peer review
  2. **Person Focus**: To support exceptionally talented a) postdoctoral fellows into independent positions and b) newly independent research faculty (first year or equivalent)
- RFA link: **https://grants.nih.gov/grants/guide/pa-files/PAR-23-198.html**
- Questions? Email Timothy Gondré-Lewis, tglewis@niaid.nih.gov

NIH Common Fund High-Risk High-Reward Programs

Early Independence Award

Enables outstanding early career scientists to move rapidly into independent research positions by skipping the traditional postdoc.

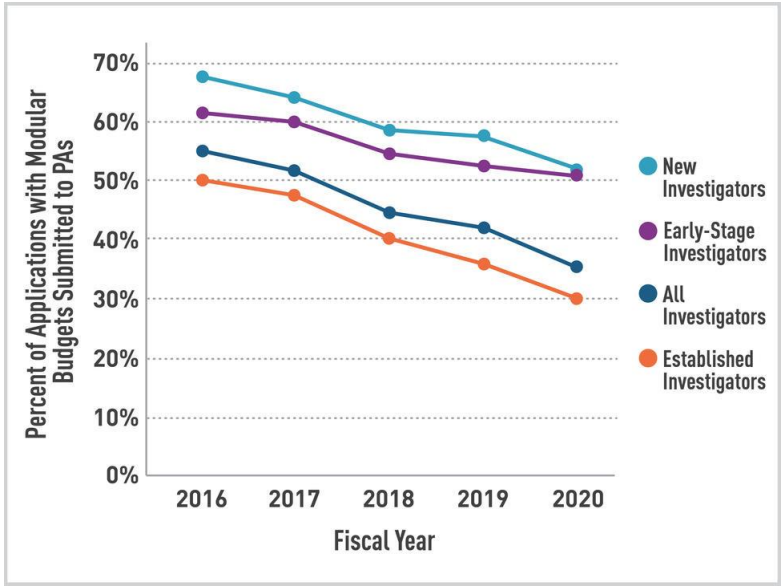
New Innovator Award

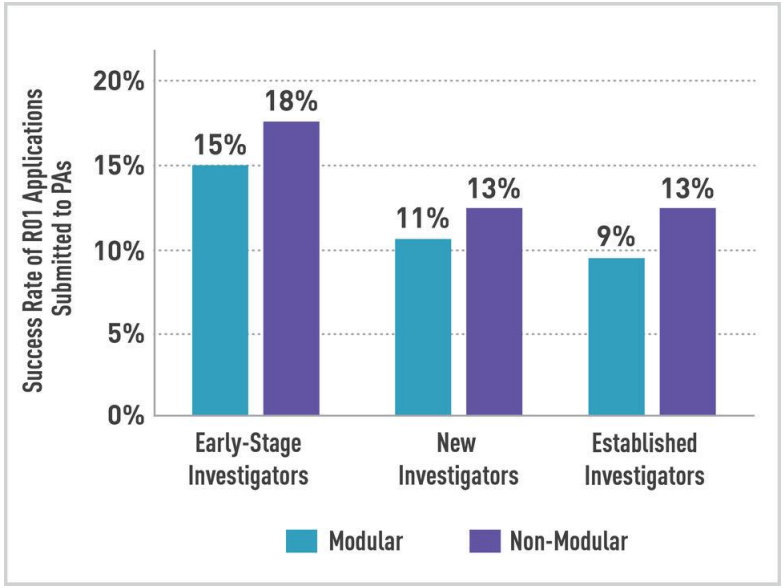
Supports **early career investigators of exceptional creativity** who propose **bold and highly innovative research projects**.

URL: https://commonfund.nih.gov/highrisk

Email: HRHR@od.nih.gov

NCI R01 ESI Modular vs. Non-Modular Budget





- Budget must be appropriate and scientifically justified for the research scope proposed
- There is no disadvantage to submitting a non-modular budget, with justifications
- https://www.cancer.gov/grants-training/nci-bottom-line-blog/2022/modular-versus-non-modular-budgets

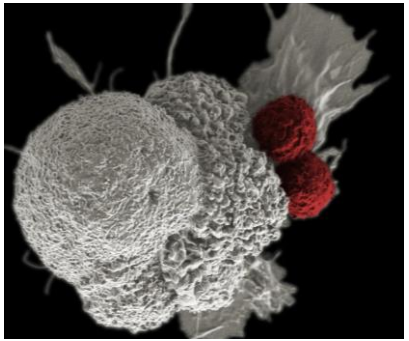
CSR Early Career Reviewer (ECR)

- Unique, first-hand experience with CSR peer review to improve your own grant writing skills by getting an insider's view of how grant applications are evaluated
- Apply here: https://www.csr.nih.gov/EAVS/login
- Questions? Email CSRearlyCareerReviewer@mail.nih.gov

- Eligibility:
  - Have not served on an NIH study section in any capacity aside from as a mail reviewer
  - Have not held an R01 or R01-equivalent (R35, R37, RF1, R23, R29, DP1, DP2, DP5, U01, RL1) grant in the PI role
  - Must have submitted a grant proposal, in the PI role, to the NIH and received the associated summary statement

Funding Opportunities in Cancer Immunology

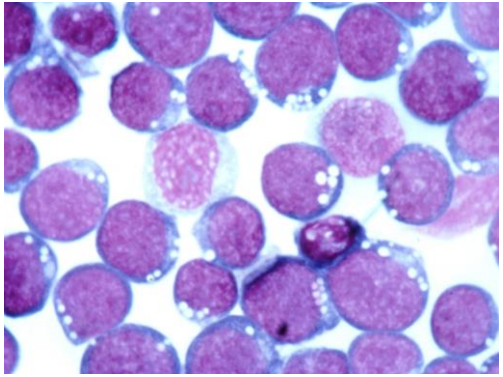
- **NOT-CA-24-016:** R21s for Exploratory Cancer Immunology Projects and Technologies (ExCITe)
- **NOT-CA-22-063:** Understanding the Basic Mechanisms of Immune-related Adverse Events (irAEs) in Cancer
- **RFA-CA-23-029:** Cancer Immunoprevention Network (CIP-Net) Research Projects (UG3/UH3)
- **PAR-21-348:** The role of Epstein Barr virus (EBV) infection in Non-Hodgkin Lymphoma (NHL) and Hodgkin Disease (HD)
- **PAR-22-085:** Microbial-based Cancer Imaging and Therapy - Bugs as Drugs (R01)
- **PAR-22-086:** Microbial-based Cancer Imaging and Therapy - Bugs as Drugs (R21)
- **PAR-22-061:** Modulating Human Microbiome Function to Enhance Immune Responses Against Cancer (R01)
- **PAR-22-062:** Modulating Human Microbiome Function to Enhance Immune Responses Against Cancer (R21)

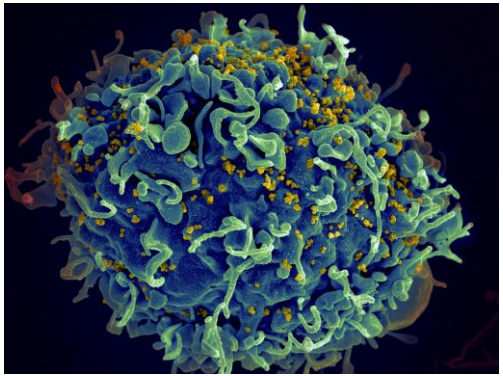


Funding Opportunities Related to *Viral Infections and Cancer*

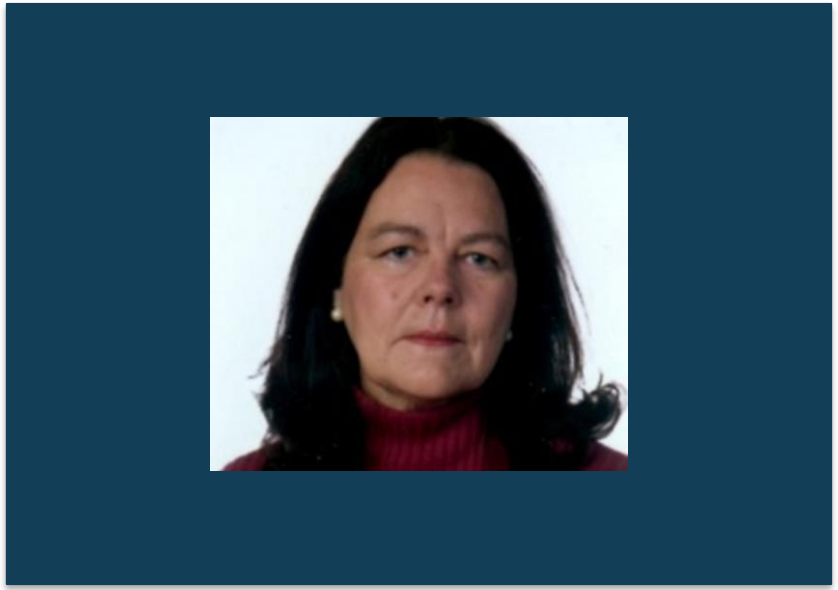
PAR-21-348: ***The role of Epstein Barr virus (EBV) infection in Non-Hodgkin Lymphoma (NHL) and Hodgkin disease (HD) development with or without an underlying HIV infection (U01)***

Supports research projects examining the role of EBV infection on NHL and HD development, which will form the **Epstein Barr Virus associated Lymphoma Consortium (EALC).**





DCB Contact for NOFOs related to *Viral Infections and Cancer*



Betsy Read-Connole
(bconnole@mail.nih.gov)

Funding Opportunities Related to *Cancer Microbiome*

PAR-22-061 & PAR-22-062:
Modulating Human Microbiome Function to Enhance Immune Responses Against Cancer (R01 & R21)

Support basic research that elucidates mechanisms by which the microbiome inhibits or enhances anti-tumor immune responses and identifies targets for cancer prevention strategies.

PAR-22-085 & PAR-22-086
Microbial-based Cancer Imaging and Therapy - Bugs as Drugs (R01 & R21)

Support research investigating novel microbial-based cancer therapy, imaging detection, and diagnosis strategies to overcome the limitations of inadequate conventional cancer imaging and therapies.

DCB Contacts for NOFOs related to *Cancer Microbiome*

Phil Daschner
(daschnep@mail.nih.gov)

Funding Opportunities in *Cancer Immunotherapy*

NOT-CA-22-063 (NOSI):
Basic Mechanisms of Immune-related Adverse Events (irAEs) in Cancer Immunotherapy

Supports mechanistic research that aims to improve the understanding of the pathophysiology of irAEs related to immunotherapy.

Yin Liu
(liuy@exchange.nih.gov)

Cancer Immunoprevention Network (CIP- Net) UG3/UH3 Research Projects

Notice of Funding Opportunity

RFA-CA-23-029

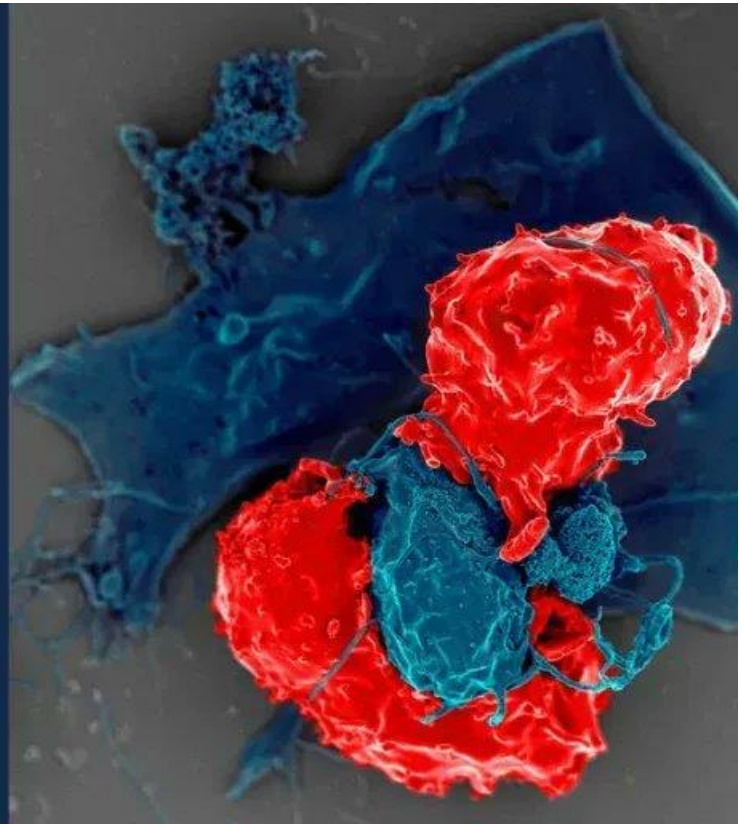
Cancer Immunoprevention Network (CIP-Net) Research Projects (UG3/UH3)

Deadline July 3, 2024

NCI Contacts

Altaf Mohammed & Lillian Kuo

CIP-Net@mail.nih.gov



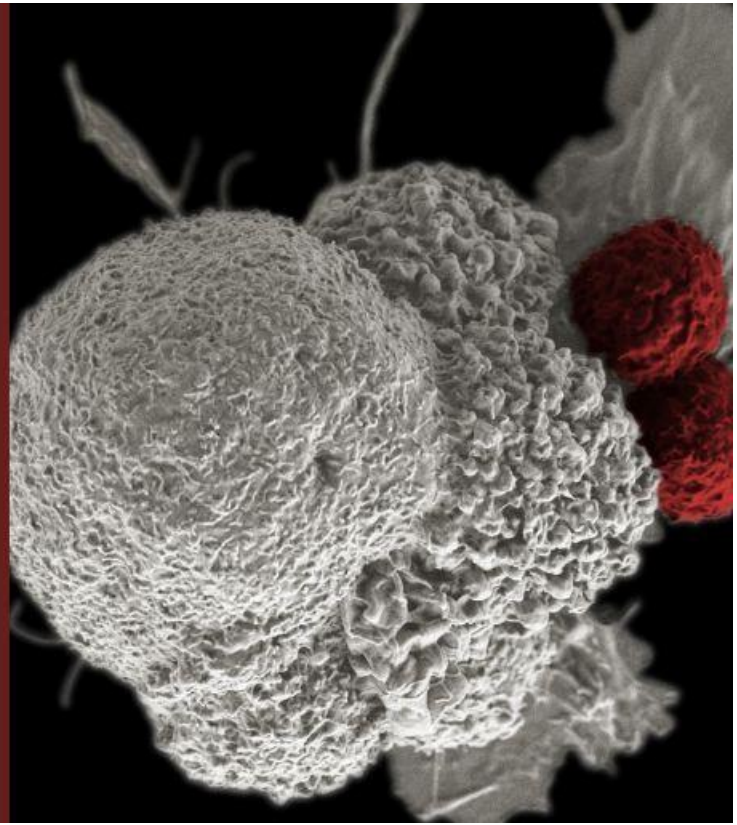
Cancer Immunology R21

Notice of Funding Opportunity

NOT-CA-24-016

Notice of Special Interest (NOSI):
Exploratory Cancer Immunology Projects and Technologies (ExCITe)

NCI Contact
Monica Zamisch
monica.zamisch@nih.gov



Cancer Immunology R21 Considerations

- ***Myth 1***: New or junior investigators should use an R21 to establish a research career
  - Never the intended use. Different NIH funding institutes use the R21 in distinct ways
  - No consideration of career stage in funding decisions

- ***Myth 2***: R21 is less competitive than an R01, it's just a small R01 without preliminary data
  - More competitive, payline lower
  - More than 98% of successful R21 applications include some preliminary data
  - Don't confuse "not required" with "not desired"

Pre-clinical and Translational Funding Opportunities

- **PAR-22-216**: NCI Clinical and Translational Exploratory/Developmental Studies (R21)
- **PAR-21-033**: NCI's Investigator-Initiated Early Phase Clinical Trials for Cancer Treatment and Diagnosis (R01)
- **PAR-22-090 and PAR-22-091**: Exploratory/Developmental Bioengineering Research Grants (R21)
- **PAR-22-242 and PAR-22-243**: Bioengineering Research Grants (R01)
- **PAR-22-123**: Bioengineering Partnerships with Industry (U01)
- **PAR-21-166 and PAR-21-206**: Academic-Industrial Partnerships for Translation of Technologies for Diagnosis and Treatment (R01)
- **PAR-22-071**: Toward Translation of Nanotechnology Cancer Interventions (R01)
- **PAR-20-284**: Innovative Research in Cancer Nanotechnology (R01)
- **PAR-23-264**: Assay Development and Screening for Discovery of Chemical Probes, Drugs or Immunomodulators (R01)
- **PAR-22-198 and PAR-22-199**: Precision Approaches in Radiation Synthetic Combinations (R01 and R21)
- **PAR-22-139 and PAR-22-140**: Systematic Testing of Radionuclides in Preclinical Experiments (R01 and R21**)**

https://dctd.cancer.gov/FundingPartnerships/PAsRFAs.htm

Search for Funding Opportunities

https://grants.nih.gov/funding/index.htm

Funding

NIH offers funding for many types of grants, contracts, and even programs that help repay loans for researchers. Learn about these programs, as well as about NIH's budget process, grant funding strategies, and policies, and more.

Find Grant Funding

(NIH Guide to Grants and Contracts)

The NIH Guide for Grants and Contracts is our official publication for NIH grant policies, guidelines and funding opportunities. We publish daily, and issue a table of contents weekly. Learn more about the NIH Guide and subscribe today!

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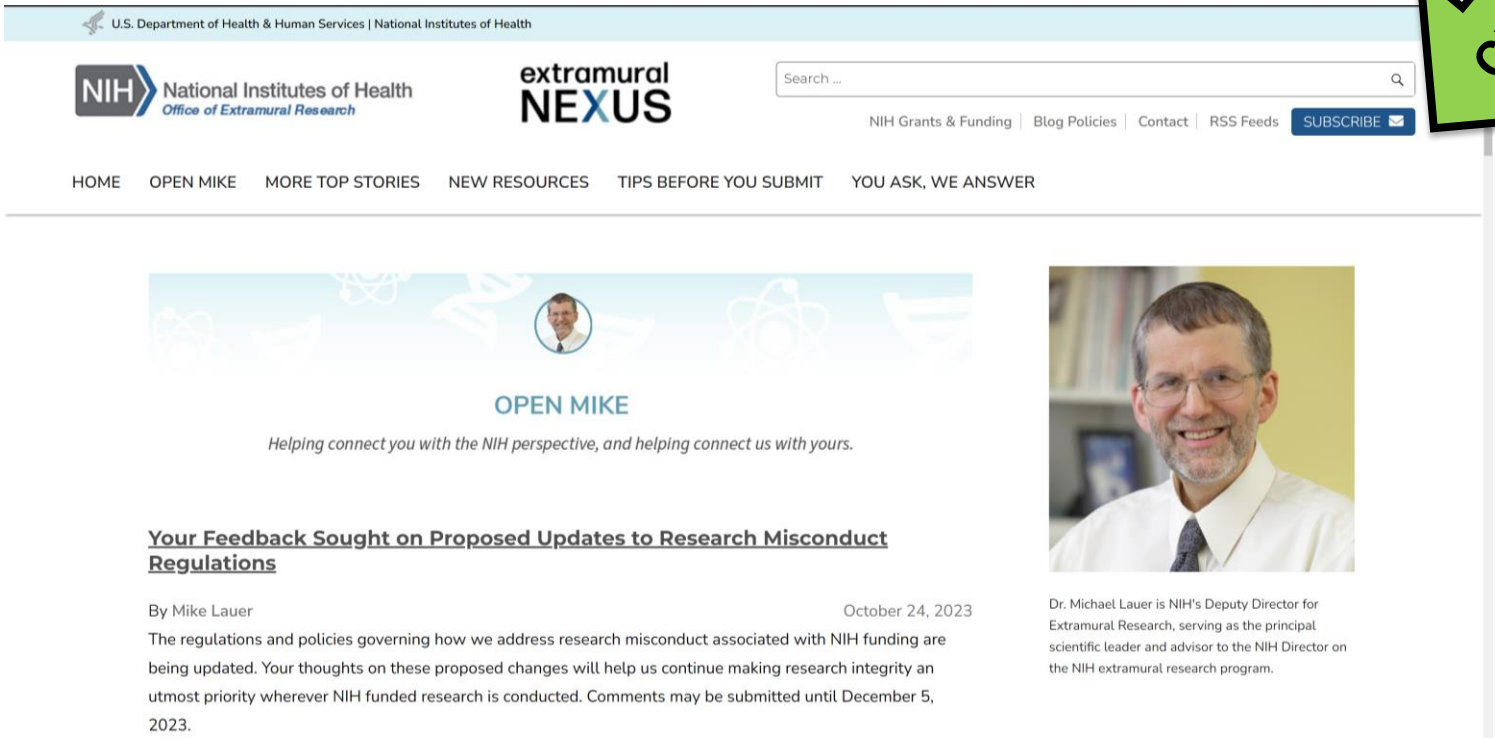


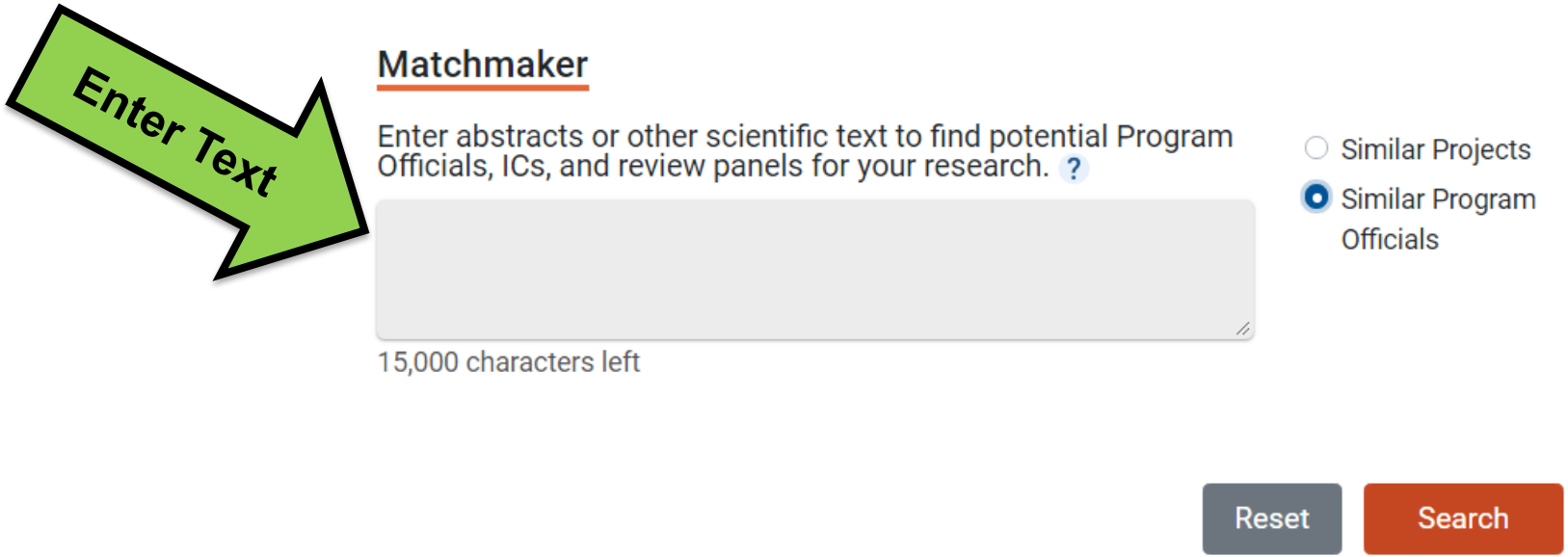
NCI Division of Cancer Biology (DCB)
New Grantee Workshop

DCB offers an annual workshop for new and early-stage investigators to familiarize them with the processes of DCB, NCI, and NIH.

Presentation slides and FAQs can be found at cancer.gov/dcb.

Contact Your Program Officer/Director (cont'd)

https://reporter.nih.gov/matchmaker



Questions Welcome!

Email: Lillian.Kuo@nih.gov

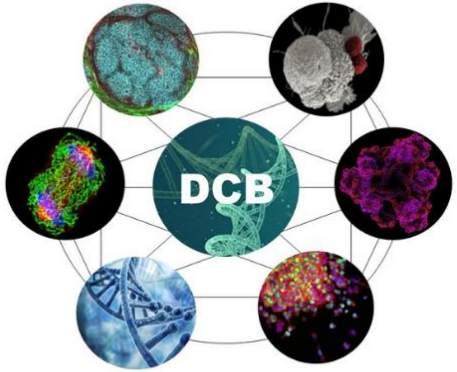
Twitter: @NCICancerBio

www.cancer.gov

www.cancer.gov/espanol

Current NCI Funding Opportunities in Cancer Biology

Notices of Funding Opportunities (NOFOs) supported by the NCI Division of Cancer Biology(DCB) can be found at cancer.gov/dcb



Examples of NIH Grant Programs

- **R01 - Research Project Grant**

  - Usually 5 yrs; $250K or more direct costs per year (but need advanced permission for > $500K per year)

- **R21 - Exploratory/Developmental Research Grant**

  - 2 yrs; combined budget for both years capped at $275K direct costs

  - For NCI, only in response to a specific NOFO (but not the Parent Announcement)

- **R03 - Small Grant**

  - Up to 2 yrs; up to $50K direct costs per year

  - Designed for small research projects, pilot/feasibility studies, secondary analysis of existing data, or development of methodology/technology

Examples of NIH Grant Programs (cont'd)

- **UH2 - Exploratory/Developmental Cooperative Agreement Phase I**
  - Support the developmental/pilot studies and often limited to 1-2 yrs
  - Substantial involvement from NIH staff
- **U01 - Research Project Cooperative Agreement**
  - Substantial involvement from NIH staff
  - Significant collaborative aspects
  - Similar to an R01
- **UM1 - Research Project with Complex Structure Cooperative Agreement**
  - Support large-scale research activities with complicated structures
  - Substantial involvement from NIH staff
- **Administrative Supplements**
  - Provide additional funding to a current grant

Different Types of NOFOs

- **Request for Applications (RFA)**
  - A call for applications in a specific area of high programmatic interest
  - Reviewed in a Special Emphasis Panel (SEP)
  - Has set-aside funds
- **Program Announcement with Special Receipt, Referral, or Review (PAR)**
  - Identifies areas of increased priority or emphasis by NIH or an IC
  - Can be reviewed in regular study sections or Special Emphasis Panel (SEP)
  - Does not have specific funds set aside
- **Notice of Special Interest (NOSI)**
  - Describes an IC's interest in an area
  - Points applicant to the right NOFOs to apply to (often a Parent Announcement)

What a Program Officer **cannot** do for you

- Tell you how to do your project
- Provide exemptions for submission deadline or rules violation
- Change a study section assignment
- Change funding policies
- Change the requirements that must be fulfilled for an award to be issued
- Write you a letter of recommendation as your PO
- Talk to your Chairperson, or anyone outside of NIH except you, about your application, your Summary Statement, or your job/position status

Administrative Supplements

- Different NIH institutes and programs may use administrative supplements for different reasons
- Cannot be an expansion of scope

1. Unanticipated scientific needs? Directly contact the Program Officer on your active award
2. Special programs for specific needs through NOSI, search at **grants.nih.gov**

Assemble Your Team

- Contact PI vs. multi-PI (MPI) vs. Co-Investigator distinctions
- For a multi-PI (MPI) application, each MPI should have complementary expertise
- Strong letters of support demonstrating intellectual buy-in for the project
- Engage your Biostatistician and/or Bioinformatician from the initiation of your experimental design through the interpretation of the data and alternate approaches sections