**Cancer Research Education Grants Program – Research Experiences (R25)**

* Re-issue of [PAR-21-279](https://grants.nih.gov/grants/guide/pa-files/PAR-21-279.html)
* R25 education projects <https://www.cancer.gov/grants-training/training/funding/r25e>
* Full instructions here: <https://grants.nih.gov/grants/guide/pa-files/PAR-23-277.html>

**Due dates:**

* **For new applications January 25, May 25, September 25 (2024-2026)**
* **Expires January 8, 2027.**

**Application components:**

* SF424(R&R) Cover
* SF424(R&R) Project/Performance Site Locations
* SF424(R&R) Other Project Information Component
* SF424(R&R) Senior/Key Person Profile Expanded
* R&R Budget
* PHS 398 Cover Page Supplement
* PHS 398 Research Plan
* PHS Human Subjects and Clinical Trials Information
* PHS Assignment Request Form

\*\*Based on page limit information (<https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/page-limits.htm>) an R25 application also needs to include the following components:

* Project Summary/Abstract (30 lines)
* Project Narrative (3 sentences)
* Introduction to Resubmission Application (if applicable) (3 pages)
* Introduction to Revision Application (if applicable) (1 page)
* Specific Aims (1 page)
* Biosketch(es) (5 pages)

**Not sure where this info goes:**

* Protection for human subjects
* Inclusion of women, minorities and individuals across the lifespan
* Vertebrate animals
* Biohazards
* Resource sharing plans

**\*\*Templates/tips below for sections with special instructions\*\***

# Project Summary

30 lines

# Project Narrative

Three sentences.

# Biosketches

Five pages each.

# Introduction to Resubmission Application (if applicable)

Three pages.

# Introduction to Revision Application (if applicable)

One page.

# SF 424 (R&R) Other Project Information Component

* Describe educational environment including facilities, laboratories, participating departments, computer services, and any other resources to be used in the development and implementation of the program.
* List all thematically related sources of support for research training and education following the format for Current and Pending Support.
* Institutional commitment should include the provision of adequate staff, facilities, and educational resources.

# R&R Budget

* Identify key personnel and % FTE, RMG has a budget template, need the draft budget.
* All personnel other than the PDs/PIs should be included in the Other Personnel section, including clerical and administrative staff.
* Funds requested to support participants should be included in Participant/Trainee Support Costs section.

PHS 398 Research Plan

# Specific Aims

One page

* Summarize background & rationale, goals, outcomes, impact.

# Research Strategy

Total 25 pages

## Research Education Program Plan

The **Research Education Program Plan** should include the following sections (details below):

* Proposed Research Education Program
* Program Director / PI
* Program Participants
* Institutional Environment and Commitment
* Recruitment Plan to Enhance Diversity
* Plan for Instruction in the Responsible Conduct of Research
* Evaluation Plan

### Proposed Research Education Program

#### Initial summary/outline of program:

* Description should include explanation of how proposed undergraduate research experience will address topics relevant to the cause, diagnosis, prevention, or treatment of cancer, rehabilitation from cancer, or the continuing care of cancer patients or the families of cancer patients.
* In addition, it should reference a specific program goal:
  + “Training of a workforce to meet the nation’s biomedical, behavioral and clinical research needs.”
  + Advance the NCI mission “to lead, conduct, and support cancer research across the nation to advance scientific knowledge and help all people live longer, healthier lives.”
  + Encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research.
  + Help recruit individuals with specific specialty or disciplinary backgrounds to research careers in biomedical, behavioral and clinical sciences.
  + Foster a better understanding of biomedical, behavioral and clinical research and its implications.

#### Background & rationale:

This section should explain why this program is needed:

What programs already exist at SCI and what are educational/training gaps that need to be filled?

* The proposed programs should provide research experiences and related educational activities that are not available through formal NIH training mechanisms.

#### Program goals:

Based on above-described needs, explain what the goals of proposed program are. This should include the following:

* Stimulate interest and advance knowledge base of participants.
* Program should encourage participants to consider further education and training and future careers as cancer researchers.
* Describe the importance of the research experiences in meeting the needs of the intended participants and the likelihood of improving their knowledge and/or skills.
* This should again reference how the proposed research experiences program will address the cause, diagnosis, prevention, or treatment of cancer, rehabilitation from cancer, or the continuing care of cancer patients and the families of cancer patients.

#### Preliminary “data” (pilot program) & any results from surveys

Describe pilot undergraduate program and any results.

#### Program specs:

Provide program details. Make sure the following aspects are considered:

##### Educational concepts and principles:

* Provide the underlying rationale and evidence supporting the need for the program.
* Describe innovative aspects and explain the significance of the research experiences program.
* Describe the educational concepts and principles on which the program is based and the overall strategy, methodology, and analyses to be employed.

##### Participants:

* Specify educational and/or career level of planned participants.
* It is expected that each participant will be integrated into the research setting of his/her assigned faculty mentor who will have direct oversight responsibility for the participant, which will include regular, in-person interaction.
* Include info on recruitment, retention, follow-up activities (if applicable) to ensure highly qualified participant pool. Enhancing diversity is a requirement.
* Note that there is also a separate section, “Program Participants,” which may include some of this information.

##### Time requirements:

* Full time (40 hr/week) period of 8-15 weeks.
* R25 programs lasting at least 8 weeks, but less than 15 weeks, of full-time research experiences are allowed to request continued part-time support for some or all of the participants to continue to work on their research projects, up to the equivalent of 15 weeks of full-time participation, as long as the entire research experience is completed within a 12-month period.
* It is expected that most individuals will only receive support one time to participate in the R25 research experiences program. However, at the discretion of the PD(s)/PI(s), up to 20% of the participants may receive support to participate a second time, if they play a peer-to-peer mentor role for the new participants.

##### Content:

* Program should provide opportunities for participants to present work at professional venue and/or earn co-authorship on peer-reviewed publication(s).
* Complementary educational activities (e.g. seminars, journal clubs, grand rounds, field trips, career development presentations, etc.) are encouraged but should not exceed more than 8 hours per week (20% of the full-time effort) on average.

#### Training in methods for enhancing reproducibility:

* Explain how trainees be instructed in principles important for enhancing research reproducibility? Include:
  + Evaluation of foundational research underlying a project (i.e., scientific premise)
  + Rigorous experimental design
  + Consideration of relevant biological variables such as sex
  + Authentication of key biological and/or chemical resources
  + Data and material sharing
  + Record keeping
  + Transparency in reporting
* Describe how rigor and transparency components are integrated into the overall curriculum.
* These components should be taught at multiple stages of trainee development and in a variety of formats and contexts.
* Teaching should synergize with elements of the curriculum designed to enhance trainees' abilities to conduct responsible research.
* Program faculty should reiterate and augment key elements of methods for enhancing reproducibility when trainees are performing mentored research in their laboratories.

#### For Renewals:

* Describe the progress made in the last funding period.
* Highlight positive program outcomes.
* Describe the need for continued support in advancing the NCI mission.
* Demonstrate continuing need for the program.
* Include a description of how the proposed program content and/or methodologies have been updated since the previous application.

#### Program uniqueness [innovation/creativity]:

Describe what makes the program unique/innovative and how ‘state of the art’ educational approaches will be applied.

* Educational experiences must be distinct from research training and research education programs currently receiving federal support.
  + Should complement other formal training programs.
  + Clearly distinguish between the activities in the proposed program and research training supported by the training program.
* If relevant, explain how the scope of the proposed research experiences program extends beyond that of adapting of any of the current or previously supported NCI R25 awards of the PI(s)/PD(s) to focus on a different target population.

#### Potential problems and alternative approaches:

* Consider potential problems that may be encountered and describe alternative strategies that could be employed.

#### Benchmarks

* Provide support for the feasibility of the proposed activities and describe the benchmarks to be used to assess the success of the research experiences program.
* Note there is also a separate Evaluation section that perhaps can be referenced here.

#### Concluding summary:

Emphasize that program will:

* provide a cancer-focused research experience that is novel in content to the participants.
* strongly advance research education.
* advance stated goals of program.
* will contribute to the development and education of highly trained cancer scientists or health professionals in adequate numbers/address cancer-relevant topics.

### Program Director/PI

* Describe arrangements for administration of the program.
* Provide evidence that PD/PI is able to provide administrative and scientific leadership to develop and implement program.
* Evidence that sufficient effort will be involved.
* Provide evidence that the Program Director/Principal Investigator is actively engaged in research and/or teaching in an area related to the mission of NIH, and can organize, administer, monitor, and evaluate the research education program.
* Provide evidence that program faculty act as good role models based on scientific achievement.
* Provide evidence for mentoring/teaching experience.
* For programs proposing multiple PDs/PIs, describe the complementary and integrated expertise of the PDs/PIs, their leadership approach, and governance appropriate for the planned project.
* Explain how the level of effort devoted by the program leadership to the program is sufficient to ensure that the program's intended goal is accomplished.

### Program Faculty

* Diversity among program faculty is encouraged.
* Faculty should have research expertise and experience relevant to the proposed program and demonstrate a history of, or the potential for, their intended roles.
* List Program Faculty whose role is to develop, implement, direct, monitor, mentor, evaluate, consult, etc., in the proposed research experiences program as Key Personnel and provide their biographical sketches.
* Describe the experience of the participating faculty in teaching and mentoring, as well as their ability to serve as good role models for the participants by virtue of their own scientific accomplishments.

### Program Participants

* Describe the intended participants, and the eligibility criteria and/or specific educational background characteristics that are essential for participation in the proposed research education program.
* Identify the career levels for which the proposed program is planned.
* Provide details about the pool of expected participants in the research experiences program and the sources of the applicant pool.

### Institutional Environment and Commitment

* This section should not duplicate information provided elsewhere (so some of these topics could be covered in other sections).
* Describe any additional aspects of the Institutional Environment and Commitment not addressed under “Facilities & Other Resources” or the required “Institutional Commitment Letter of Support,” described below.
  + Does institute provide sufficient support to faculty to allow them to create a sound educational environment?
* Appropriate institutional commitment should include the provision of adequate staff, facilities, and educational resources that can contribute to the planned research education program.
  + How does scientific and educational environment contribute to goals?
  + Is there a plan to take advantage of this environment to pursue program goals?
  + Describe physical resources (e.g. equipment, other).
  + Are there any unique features to the scientific environment/subject populations or collaborative agreements that may contribute to goals?
* Where appropriate, describe any unique features of the scientific environment, subject populations, or collaborative arrangements that may be leveraged to the advantage of the proposed research experiences program.
* If multiple sites are participating, describe how this will enhance the quality of the research experiences provided, as well as how activities will be coordinated and effective communication maintained among the multiple sites.
  + Provide evidence for buy-in from all parties.
  + Justify need for multiple sites.
  + Describe coordination plans.

### Recruitment Plan to Enhance Diversity (NOT-OD-20-031)

* Applications lacking a Recruitment Plan to Enhance Diversity will not be reviewed.
* Describe outreach strategies and activities designed to recruit prospective participants from diverse backgrounds, e.g., those from groups described in the [Notice of NIH's Interest in Diversity](https://grants.nih.gov/grants/guide/notice-files/NOT-OD-20-031.html).
* Describe the specific efforts to be undertaken by the program and how the proposed plan reflects past experiences in recruiting individuals from underrepresented groups.

### Plan for Instruction in the Responsible Conduct of Research (RCR)

* Applications lacking a plan for instruction in responsible conduct of research will not be reviewed.
* Appropriate to the level of participant experience, program should include RCR training that should meet the following criteria:
  + **Format -** the required format of instruction is face-to-face lectures, coursework, and/or real-time discussion groups (a plan with only on-line instruction is not acceptable).
  + **Subject Matter –** should cover conflict of interest, authorship, data management, human subjects and animal use, laboratory safety, research misconduct, research ethics.
  + **Faculty Participation -** Describe role of the program faculty in the instruction.
  + **Duration of Instruction -**  State number of contact hours of instruction, taking into consideration the duration of the program.
  + **Frequency of Instruction -** Instruction must occur during each career stage and at least once every four years.
* See also: [NOT-OD-10-019](http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-10-019.html).
* All participating faculty who serve as course directors, speakers, lecturers, and/or discussion leaders during the past project period must be named in the application.
* Renewal (Type 2) applications must, in addition, describe any changes in formal instruction over the past project period and plans to address any weaknesses in the current instruction plan.
* During review, the RCR plans will be rated as either **acceptable** or **unacceptable**.

### Evaluation Plan

* Plan for evaluating the activities supported by the award.
* Specify baseline metrics (e.g., numbers, educational levels, and demographic characteristics of participants), as well as measures to gauge the short or long-term success of the research education award in achieving its objectives.
  + For undergrads, NIH will want to know aggregate number and demographic characteristics of particpants
  + Subsequent educational/career progression (e.g. successful completion of undergraduate degree in cancer-related field; enrollment in advanced degree program in cancer-related field).
* Include a timeline for conducting the evaluation.
* Wherever appropriate, applicants are encouraged to obtain feedback from participants to help identify weaknesses and to provide suggestions for improvements.
* Evaluation data should be appropriate for an education program.
  + For example, surveys completed by participants and/or publicly available information about participants would be appropriate.
* Explain how the evaluation plan will provide useful data on program effectiveness.
  + Clarify process for determining and evaluating outcome.

Sample figure:

A room with a few people in it

Description automatically generated

Figure 1: Lab space at the Lokey Stem Cell Research Building.

Sample Table:

|  |  |  |  |
| --- | --- | --- | --- |
| Column 1 | Column 2 | Column 3 | Column 4 |
| First person | 24 | 65 | 89 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Letters of Support

Letter of institutional commitment (see ‘Institutional Environment and Commitment’ for what to include).

## Resource Sharing Plan

Data Management and Sharing Plan is not applicable for this NOFO.

If support for development, maintenance, or enhancement of software is requested, a software dissemination plan is required, addressing the following:

* Software source code should be freely available to biomedical researchers and educators in the non-profit sector, such as institutions of education, research institutions, and government laboratories.
* Users should be permitted to modify the code and share their modifications with others.
* The terms of software availability should permit the commercialization of enhanced or customized versions of the software, or incorporation of the software or pieces of it into other software packages.
* To preserve utility to the community, the software should be transferable such that another individual or team can continue development in the event that the original investigators are unwilling or unable to do so.

## PHS Human Subjects and Clinical Trials Information

When involving human subjects research, clinical research, and/or NIH-defined clinical trials (and when applicable, clinical trials research experience) follow all instructions for the PHS Human Subjects and Clinical Trials Information form in the SF424 (R&R) Application Guide, with the following additional instructions:

* If you answered “Yes” to the question “Are Human Subjects Involved?” on the R&R Other Project Information form, you must include at least one human subjects study record using the Study Record: **PHS Human Subjects and Clinical Trials Information**form or**Delayed Onset Study record.**
* **Study Record: PHS Human Subjects and Clinical Trials Information**
  + All instructions in the SF424 (R&R) Application Guide must be followed.
* **Delayed Onset Study**
  + Note: [Delayed onset](https://grants.nih.gov/grants/glossary.htm#DelayedOnsetStudy) does NOT apply to a study that can be described but will not start immediately (i.e., delayed start). All instructions in the SF424 (R&R) Application Guide must be followed.