<table>
<thead>
<tr>
<th><strong>ANNOUNCEMENT TITLE</strong></th>
<th><strong>ASTRO-BCRF Emerging Investigator Award to Build a Diverse Scientific Workforce</strong></th>
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<tbody>
<tr>
<td><strong>AWARD YEAR</strong></td>
<td>2023</td>
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<tr>
<td><strong>MECHANISM</strong></td>
<td>Emerging Investigator Award (EIA)</td>
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<tr>
<td><strong>PA NUMBER</strong></td>
<td>EIA-2023-01-BCRF</td>
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<tr>
<td><strong>PROGRAM PARTNER</strong></td>
<td>Breast Cancer Research Foundation (BCRF)</td>
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<tr>
<td><strong>POSTED DATE</strong></td>
<td>January 20, 2023</td>
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<tr>
<td><strong>PURPOSE</strong></td>
<td>To foster and develop talented early-career breast radiation oncology researchers who are members of the populations that are currently underrepresented in biomedical research.</td>
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<td><strong>AWARD TERM</strong></td>
<td>1 year. One no-cost extension (NCE) may be considered by ASTRO at ASTRO’s full discretion. However, the total project period may not exceed 2 years.</td>
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<td><strong>NUMBER OF AWARDS</strong></td>
<td>Up to one (1) award, unless additional funds become available at ASTRO’s discretion.</td>
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<td><strong>AWARD BUDGET</strong></td>
<td>Total budget of up to $100,000 for one year can be awarded to the applicant’s organization (Institution). No-cost extension is allowable pending acceptable justification evaluated by both ASTRO and BCRF. Neither ASTRO nor BCRF will pay indirect costs as part of this award.</td>
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<tr>
<td><strong>APPLICATION DUE DATE</strong></td>
<td>April 24, 2023; 9:00 AM Eastern time (GMT -5)</td>
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<tr>
<td><strong>EARLIEST START DATE</strong></td>
<td>November 1, 2023</td>
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<tr>
<td><strong>ELIGIBILITY</strong></td>
<td>The general eligibility criteria for this PA are listed in this section. Meanwhile, ASTRO has full discretion in any funding decision and is not obligated nor liable to issue any award to any eligible or ineligible applicants at any time.</td>
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| **Eligible Organizations** | Higher Education Institutions  
  - Public/State Controlled Institutions of Higher Education  
  - Private Institutions of Higher Education  
  Nonprofits Other Than Institutions of Higher Education  
  - Nonprofits with 501(c)(3) IRS Status (Other than Institutions of Higher Education)  
  - Nonprofits without 501(c)(3) IRS Status (Other than Institutions of Higher Education) |
| **Foreign Institutions** |  
  - Non-domestic (non-U.S.) Entities (Foreign Institutions) are not eligible to apply.  
  - Non-domestic (non-U.S.) components of U.S. Organizations are not eligible to apply. |
Eligible Individuals (Principal Investigators (PIs))
Any applicants who self-identify as a member of any of the “Underrepresented Populations in the U.S. Biomedical, Clinical, Behavioral and Social Sciences Research Enterprise” as listed in the Notice of NIH’s Interest in Diversity (NOT-OD-20-031). Multiple PIs are not allowed.

Degree Requirements and Faculty Appointment
At the time of application, an eligible individual must hold at least one terminal degree such as PhD, MD, MD/PhD, or other equivalent degrees in medicine or the sciences, and should have no more than a total of 5 years (with exceptions – please see below) of combined experience as a faculty member at any Eligible Organization (as defined above). Researchers who have experienced lapses in their research career or periods of less than full-time effort for reasons such as medical concerns, disability, family care responsibilities, natural disasters, and active-duty military service can submit requests to extend the above-stated 5-year limit for ASTRO and BCRF to consider on a case-by-case basis. Generally, residents, postdoctoral fellows, or other trainees are not eligible to apply. However, if at the time of application submission, a trainee has secured an independent faculty position and provided supporting evidence and endorsement from an Eligible Organization which offers the aforementioned independent faculty position, ASTRO and BCRF can choose to accept the application from such a trainee for review, if all other eligibility criteria for such an application have been satisfied.

Level of effort
The PI is required to commit at least 20% of their career responsibilities to the research project and career development/training plan described in the application.

ASTRO Membership
The applicant must be an ASTRO member in good standing at the time of award activation.

COMMITMENT FROM THE APPLICANT
• Mentors and Collaborators: Transdisciplinary collaborations are encouraged but the proposed project team must include at least one radiation oncologist, radiation or cancer biologist, or radiation physicist. Investigators must designate a mentor, preferably one at the same Institution, who will provide guidance and support for the successful completion of the proposed research project. Mentors should be senior investigators with a minimum of R01 or equivalent level funding and provide a letter of support detailing their oversight and support.
• ASTRO Meetings: If awarded with this CDA, the PI is encouraged to attend at least one ASTRO Annual Meeting and present their research findings at the meeting.
**COMMITMENT FROM THE APPLICANT’S AFFILIATED ELIGIBLE ORGANIZATION(S)**

- If awarded, the host department will act as the fiscal intermediary. The Institution will administer the funds to the PI and be responsible for satisfying tax withholding, deposit and/or reporting requirements applicable to the payment of the award. The PI will be responsible for individual income taxes. The Institution will be required to provide sufficient additional funds to supplement salaries or supplies as needed for the research project.
- Any change in Institution, mentor and chair or in the applicant’s position that might affect their ability to successfully complete their training should be communicated as soon as possible to ASTRO so that appropriate action can be taken.
- When a mentor at the grantee Institution is to be replaced, the Institution must submit a letter from the proposed mentor documenting 1) the need for substitution 2) the new mentor’s qualifications for supervising the program and 3) the level of support for the applicant’s career development.
- Only 1 grant can support the proposed research project. If independent funding is obtained for the same scope of work selected by ASTRO-BCRF for this award the recipient must refuse either this or the competing award(s).

**APPLICATION GUIDELINES**

**Submission**

All applications are due by 9:00 am Eastern time on April 24, 2023. Proposals will not be considered after the deadline. Applications must be submitted online using the application tool at ProposalCentral: [https://proposalcentral.altum.com/GrantOpportunities.asp?GMID=105](https://proposalcentral.altum.com/GrantOpportunities.asp?GMID=105) and the document templates and requirements therein.

**Application Instructions**

It is critical that applicants follow the instructions. Conformance to the requirements in this PA are required and strictly enforced. Applications that are out of compliance with these instructions may be delayed or not accepted for review.

All materials must be prepared in English, single spaced, using a font size of 11 or 12 points. Smaller text in figures and charts is acceptable, once it is legible when the page is viewed at 100%. Arial or Times New Roman fonts are recommended. A minimum of one-half inch margins must be used on all page borders.

1. **Title Page:** Enter the Project Title, Discipline of Research, and indicate whether you have other research funding.
2. **Templates and Instructions:** Download PA and templates.
3. **Enable Other Users to Access this Proposal:** Allow others (e.g., Institutional administrators or collaborators) to view, edit, or submit the proposal.

4. **Applicant:** Complete all required fields that include PI’s name and contact information, and level of effort (%) that will be allocated to the proposed research project.

5. **PI Demographics:** Providing this information is required.

6. **Institution and Contacts:** Provide the Institution name, address and type of organization and requested contact information of the mentor and signing official.

7. **Key Personnel:** List and provide contact information for key persons.

8. **Abstracts, Impact Statement, Modalities and Common Scientific Outline (CSO) Codes:**
   - Provide a general audience abstract (non-technical) (2,000 characters including spaces max) and a technical abstract (3,000 characters including spaces max) that concisely describe the background, rationale, specific aims, approach including model system and statistical approach (if applicable), anticipated outcomes and impact of the project. Note these abstracts may become public if the award is selected for funding, therefore, it should not include any proprietary information.
   - Impact Statement: The application should prepare a concise statement of their career goals and how the award will facilitate their success. (1,000 characters including spaces max).
   - Select all relevant Modalities and CSO Codes that best represent the proposed research.

9. **Other Support:** List any additional research support that the PI currently holds. Include Project Title, Funding Source, Project Status, Award Number, Start and End Dates, Person Months, and Overlap.

10. **Research Assurances:** Indicate status of IRB/IACUC approvals as applicable, use of recombinant DNA, biohazardous materials, genetically engineered organisms, or fetal tissue.

11. **Application Documents:** Upload the below required application documents.
   - **Project Plan (6-page limit):** Project description to fit within the 1-year project period and should include:
     - Background
     - Preliminary data and figures (if applicable, but not required)
     - Specific aims
     - Research design/methods
     - Statistical analysis plan
     - Anticipated outcomes
     - Potential pitfalls and alternatives
     - Significance
     - Future Directions
References should be included but do not count towards the 6-page limit.

- **Professional and Career Development Plan (2-page limit):** Describe the applicant’s career development and/or training objectives. It is important to clearly state the applicant’s career goal(s), specify what competencies will be required to achieve those goals, what competencies the applicant plans to acquire/strengthen through this EIA, and how the applicant plans to develop those competencies.

- **Biosketches (5-page limit):** The applicant and lead mentor must each submit a biosketch including a list of relevant publications and currently funded research projects. DoD and NIH formats will be accepted. Biosketches for collaborators and research support staff are not required.

- **Budget and Budget Justification:** Submit a detailed budget (can be prepared using the NIH budget form e.g. PHS 398) and Budget Justification with a breakdown and description of annual estimated costs. ASTRO and BCRF will cover only direct costs. Funding cannot go towards supporting salaries of mentors or collaborators. Up to 20% of the awarded budget should support the PI’s stated career development or training objectives.

- **Mentoring plan (2-page limit):** A detailed mentoring plan from the applicant’s mentor that outlines courses, lectures, meetings, and other ways to support the applicant and help increase likelihood of success must be included. (This is separate from the career development/training objectives, but describe the mentor’s role in achieving those goals, if applicable)

- **Letters of support (2):** Upload 2 letters of support. One must be from your mentor. The other can be from a collaborator. Letters of support from additional collaborators can be appended but are not required.

- **Institutional letter of support:** Upload a letter of support from the Institution or Department.

12. **Validate:** Review entire proposal for missing required information

13. **Signature Page:** Before submitting the application, complete all fields within the signature page. An electronic signature is required from both the Applicant/PI and a Signing Official from the applicant’s institution. **Applications will not be considered for review if required signatures are missing.**

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<tr>
<th>APPLICATION REVIEW</th>
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<td>All proposals will undergo a rigorous peer review by the ASTRO Grant Review Panel. Reviewers are members of the ASTRO Scientific Review Panel; the ASTRO Council on Health Equity, Diversity, and Inclusion; and representatives from BCRF. A study section consisting of researchers with expertise in the areas and topics of each grant will review the application for merit and appropriateness for funding. Final decisions will be subject to the approval of the ASTRO and BCRF Boards of Directors. If no suitable candidates are found, no awards may be issued.</td>
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**Review Criteria:** In general, reviewers should evaluate the candidate’s potential for making important contributions to the field of radiation oncology and breast cancer, taking into consideration the years of experience and the likely value of the proposed project as a vehicle for developing a successful, independent career. Selected proposals will have strong merit and impact, possess an innovative and transformative approach, and demonstrate potential for progression to the clinic or other significant impact.

**Overall Impact**

Reviewers should provide their assessment of the likelihood that the proposed project along with the career development and/or training plan will enhance the candidate’s potential for a productive, independent career in the 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 impact on the field or PI’s career trajectory.

If the proposed research includes clinical study, the reviewers will consider that any clinical study may include study design, methods, and intervention that are not by themselves innovative, but address important questions or unmet needs. Reviewers should also consider the scope of the clinical study relative to the available resources, including the possibility that research support provided through career development awards may be sufficient to support only small feasibility studies.

**Candidate**

- Does the candidate have the potential to develop as an independent and productive oncology professional?
- Are the candidate’s prior training and research experience appropriate for this award?
- Is the candidate’s academic, clinical (if relevant), and research record of high quality? If not, does the candidate include a career development or training plan that will fill those gaps?
- Is there evidence of the candidate’s commitment to meeting the program objectives to become an independent investigator in radiation oncology research or contributing to medicine in other ways such as benefiting community or rural health?
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<tr>
<th><strong>Career Development Plan/Career Goals and Objectives</strong></th>
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| - What is the likelihood that the plan will contribute substantially to the scientific development of the candidate and lead to scientific independence?  
| - Are the candidate’s prior training and research experience appropriate for this award?  
| - Are the content, scope, phasing, and duration of the career development plan appropriate when considered in the context of prior training/research experience and the stated training and research objectives for achieving research independence?  
| - Are there adequate plans for monitoring and evaluating the candidate’s research and career development progress? |

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<tr>
<th><strong>Research Plan</strong></th>
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| - Do the proposed research questions bear promise to enhance health equity among breast cancer patients?  
| - If relevant, has the candidate presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?  
| - If human subjects research is proposed, has the candidate proposed a targeted enrolment table that will balance the race, ethnicity, and sex distributions to resemble the demographics of the proposed human subjects cohort that is scientifically justified?  
| - If human subjects research is proposed, has the candidate included a specific and tangible recruitment plan to reach sufficient diversity as the targeted enrollment?  
| - Are the proposed research questions, design, and methodology of significant scientific and technical merit?  
| - Innovation: Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?  
| - Is the prior research that serves as the key support for the proposed project rigorous? |
• Has the candidate included plans to address weaknesses in the rigor of prior research that serves as the key support for the proposed project?
• Has the candidate presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed?
• Is the research plan relevant to the candidate's research career objectives?
• Is the research plan appropriate to the candidate's stage of research development and as a vehicle for developing the research skills described in the career development plan?
• If relevant, are the scientific rationale and need for a clinical, feasibility or ancillary study well supported by preliminary data, clinical and/or preclinical studies, or information in the literature or knowledge of biological mechanisms?
• If proposing a small feasibility study, is the study warranted and will it contribute to planning and preliminary data needed for design of future larger scale clinical trials?
• If relevant, is the clinical or ancillary study necessary for testing the safety, efficacy or effectiveness of an intervention, or in the case of a feasibility study necessary to establish feasibility of a future clinical trial?
• Is the study design justified and relevant to the clinical, biological, and statistical hypothesis(es) being tested?
• Are the plans to standardize, assure quality of, and monitor adherence to, the protocol and data collection or distribution guidelines appropriate?
• Are planned analyses and statistical approach appropriate for the proposed study design and methods used to assign participants and deliver interventions, if interventions are delivered?
• For trials focusing on mechanistic, behavioral, physiological, biochemical, or other biomedical endpoints, is this trial needed to advance scientific understanding?

**Mentor(s), Co-Mentor(s), Consultant(s), Collaborator(s)**
• Are the qualifications of the mentor(s) in the area of the proposed research appropriate?
• Does the mentor(s) adequately address the candidate's potential and their strengths and areas needing improvement?
• Is there adequate description of the quality and extent of the mentor's proposed role in providing guidance and advice to the candidate?
• Is the mentor's description of the elements of the research career development activities, including formal course work adequate?
• Is there evidence of the mentor's, consultant's, and/or collaborator's previous experience in fostering the development of independent investigators?
• Is there evidence of the mentor's current research productivity and peer-reviewed support?
- Is active/pending support for the proposed research project appropriate and adequate?
- Are there adequate plans for monitoring and evaluating the career development of the candidate’s progress toward independence through a detailed mentoring plan?
- Does the mentor or mentoring team have the expertise, experience, and ability to guide the applicant in the organization, management and implementation of the proposed research and help him/her to meet timelines?

Environment & Institutional Commitment to the Candidate
- Is there clear commitment of the sponsoring institution to ensure that the required minimum of the candidate’s effort will be devoted directly to the research described in the application, with the remaining percent effort being devoted to an appropriate balance of research, teaching, administrative, and clinical responsibilities?
- Is the institutional commitment to the career development of the candidate appropriately strong?
- Are the research facilities, resources and training opportunities, including faculty capable of productive collaboration with the candidate adequate and appropriate?
- Is the environment for scientific and professional development of the candidate of high quality?
- Is there assurance that the institution intends the candidate to be an integral part of its research program as an independent investigator?
- Are the administrative, data coordinating, enrollment and laboratory/testing centers, appropriate for the trial proposed?
- Does the application adequately address the capability and ability to conduct the proposed research at the proposed site(s) or centers? If applicable, are there plans to add or drop enrollment centers, as needed, appropriate?
- If international site(s) is/are proposed, does the application adequately address the complexity of executing the proposed research?

Additional Review Criteria

As applicable for the project proposed, reviewers will evaluate the following additional items while determining scientific and technical merit, and in providing an overall impact score, but will not give separate scores for these items.

Protections for Human Subjects
- For research that involves human subjects but does not involve one of the categories of research that are exempt under 45 CFR Part 46, the committee will evaluate the justification for
involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: (1) risk to subjects, (2) adequacy of protection against risks, (3) potential benefits to the subjects and others, (4) importance of the knowledge to be gained, and (5) data and safety monitoring for clinical trials.

- For research that involves human subjects and meets the criteria for one or more of the categories of research that are exempt under 45 CFR Part 46, the committee will evaluate: (1) the justification for the exemption, (2) human subjects involvement and characteristics, and (3) sources of materials. For additional information on review of the Human Subjects section, please refer to the NIH Guidelines for the Review of Human Subjects.

Inclusion of Women, Minorities, and Individuals Across the Lifespan

- When the proposed project involves human subjects and/or NIH-defined clinical research, the committee will evaluate the proposed plans for the inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion (or exclusion) of individuals across the lifespan (including children and older adults) to determine if it is justified in terms of the scientific goals and research strategy proposed. For additional information on review of the Inclusion section, please refer to the NIH Guidelines for the Review of Inclusion in Clinical Research.

Vertebrate Animals

- The committee will evaluate the involvement of live vertebrate animals as part of the scientific assessment according to the following criteria: (1) description of proposed procedures involving animals, including species, strains, ages, sex, and total number to be used; (2) justifications for the use of animals versus alternative models and for the appropriateness of the species proposed; (3) interventions to minimize discomfort, distress, pain and injury; and (4) justification for euthanasia method if NOT consistent with the American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals. Reviewers will assess the use of chimpanzees as they would any other application proposing the use of vertebrate animals. For additional information on review of the Vertebrate Animals section, please refer to the NIH Worksheet for Review of the Vertebrate Animal Section.

Biohazards

- Reviewers will assess whether materials or procedures proposed are potentially hazardous to research personnel and/or the environment, and if needed, determine whether adequate protection is proposed.

Authentication of Key Biological and/or Chemical Resources
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<th><strong>For projects involving key biological and/or chemical resources,</strong> reviewers will comment on the brief plans proposed for identifying and ensuring the validity of those resources.</th>
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<tr>
<td><strong>Budget and Period of Support</strong></td>
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<td>• Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.</td>
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### PROGRAM CONTACT

- Email questions about this PA to the Department of Scientific Affairs at science@astro.org.
- Technical questions about the ProposalCentral submission system should be directed to their customer support at 1-800-875-2562 (Toll-free U.S. and Canada) or by email pcsupport@altum.com. Support is available during normal business hours: 8:30 am - 5:00pm Eastern Time (Monday through Friday).