



SOCIETY OF INTERVENTIONAL ONCOLOGY COMBINED RADIOEMBOLIZATION AND IMMUNOTHERAPY OF HCC RESEARCH GRANTS CALL

KEY DATES

Submission Deadline: 18 September 2023, Midnight Eastern Time

Selected award winner notification: Anticipated November 2023

Award proposal presentations: 28 January 2024 | SIO Annual Scientific Meeting, Long Beach, CA

For administration questions contact grants@sio-central.org For proposal inquiries contact Grants Subcommittee Chair [Dr. Julius Chapiro](#).

PURPOSE

The **SOCIETY OF INTERVENTIONAL ONCOLOGY** is pleased to announce a call for research proposals on the topic of *Combined Radioembolization and Immunotherapy of HCC*, which has been generously supported by AstraZeneca. These grants are designed to fund investigator-initiated research evaluating and advancing the understanding of biological mechanisms underpinning response and resistance to therapeutic interventions that could improve approaches to radioembolization combined with systemic immunotherapy of HCC.

Examples of the types of projects this initiative could support but are not limited to include:

- Pre-clinical studies on small or intermediate size immune competent orthotopic animal models of liver cancer for investigations focusing on the tumor microenvironment and the immuno-metabolic crosstalk in the setting of radioembolization and immunotherapy combinations
- Pre-clinical studies investigating molecular mechanisms of tumor resistance and immune cell exhaustion in immunotherapy, and the effects of radioembolization on the tumor microenvironment in order to define the influence of internally administered radiation on the tumor immune microenvironment.
- Studies that investigate optimal spatial or temporal overlap and sequence between radioembolization and immunotherapy, as well as effects of dosimetry on therapy outcome of combination therapies

- Studies that develop predictive biomarkers of immune response for combined radioembolization and immunotherapy, including peripheral serological, tissue, genetic or radiological-pathological biomarkers to direct personalized therapy decisions
- Preclinical studies investigating differences in immune response to various forms of radioembolization (vendor type, dose, amount of tissue targeted, selectivity) in the setting of combination with systemic immunotherapy
- Innovative pre-clinical imaging (e.g. molecular imaging) and novel technical approaches (e.g. involving deep learning) in liver cancer in the setting of radioembolization paired with immunotherapy, with focus on predictive biomarker development as well as assessment of tumor response
- Studies taking advantage of advanced tissue analysis (pathological, immuno-histochemical, single-cell RNA sequencing, spatial transcriptomics) in biopsies and surgical samples to advance understanding of mechanisms involved in overcoming resistance to immunotherapy in the setting of combination therapy with radioembolization
- Studies investigating mechanisms of action to guide and personalize therapeutic decisions as well as research combining data from histopathological samples and peripheral circulating immune cells to achieve predictive modeling of therapy response

Applicants should propose innovative research that advances the fields of interventional oncology and immuno-oncology. Preliminary data are strongly encouraged. Partnership of interventional oncologists with basic scientists in immuno-biology, pathology, genetics and biomedical imaging are highly encouraged. Proposals that describe short timelines for completion of high-quality studies and dissemination of results will be preferred. Proposals from applicants new to the SIO grant program will be given special consideration. This announcement does not accept clinical trials.

AWARD

Grant funding of up to \$200,000 for two-year projects with preliminary data will be provided. If the grant proposal represents supplemental funding to existing projects, clear justification for additional funding must be provided.

ELIGIBILITY

Grants are available to full-time interventional radiology faculty, full-time allied science faculty and trainees with an MD, DO, PhD, or equivalent degree. This announcement will consider applications for United States and international submissions. This announcement does not accept clinical trials. Collaboration between an interventional oncologist and field experts having documented experience in immunotherapy and / or basic research in tumor immunology / biology are required. Likewise, full-time immuno-oncologists and basic researchers are encouraged to apply – provided documented collaboration with an interventional oncologist.

- Post- doctorate candidates are invited to apply.

- Allied Scientists are encouraged to apply.
- Women and underrepresented minorities are encouraged to apply.
- Current recipients of SIO grants will not be considered.
- Eligible applicants may submit more than one proposal but only one grant will be awarded per institution.

All funded applicants must become members of the Society of Interventional Oncology (SIO) if they are not already members upon award acceptance. **The initiation of funding is conditional on presentation of the project proposal during the upcoming 2024 SIO meeting at an identified session (Long Beach CA, January 24-29, 2024). The transfer of the second and third milestone payment is conditioned on the annual SIO meeting attendance of the funded investigator which includes an oral presentation of the preliminary data during the dedicated grant sessions.**

APPLICATION PROCEDURES AND FORMAT

The application must contain a detailed research plan and a one to two-year budget for the planned research with all other funding sources indicated.

A letter from the department chair (for faculty applicants) or training program / laboratory director (for trainee applicants) must be provided that indicates approval of application, comments on the merit of the project, and explains the extent to which the department is supporting the applicant's research in terms of funding and/or available facilities. It is important that the letter indicate commitment to provide protected research time and support the salary of the applicant during the research period.

The deadline for submissions on this announcement is midnight eastern on September 18, 2023 Applications must be submitted in a combined PDF format. Incomplete applications and those submitted after the deadline will not be reviewed.

All the items detailed below must be included in the application before it will be considered.

- I. **Cover Letter:** Application must submit a one page letter detailing the relevance and significance of this proposal to furthering the goals of both interventional oncology and immuno-oncology.
- II. **Title Page:** Applicant must submit a one page lay statement / executive summary of proposed project including individual contact information, brief abstract, beginning and termination dates of proposed research. Must include project narrative paragraph as overview description of the project, no more than 3 sentences.
- III. **Specific Aims** (1 page limit)

- a. A one page summary document
- IV. **Research Plan:** Limited to 6 pages and may include text and preliminary data in the form of, tables, charts, and figures.
- i. Background
 - ii. Significance
 - iii. Innovation
 - iv. Approach
- a. 11 point Arial font, .5" margins, PDF
 - b. Preliminary data not required but strongly encouraged if available

Must include:

Significance to Interventional Oncology and Immunotherapy. Does the project combine locoregional image-guided therapy of liver cancer with immunotherapy to address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will this research impact outcomes for both interventional oncology and immuno-oncology?

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?

Approach. Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Is there a concrete plan to reproduce pre-clinical research findings in a clinical trial or other already established animal model to increase validity?

Investigator. Are the PI, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, or in the early stages of independent careers, do they have appropriate experience and training or appropriate mentors/collaborators? If established, have they demonstrated an ongoing record of accomplishments that have advanced interventional radiology?

Environment. Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

- V. **References:** No page limit. A complete list of references included in the Specific

Aims and Research Plan should be included.

- VI. **Budget Proposal:** List budget items in appropriate categories and give details and justification of each item in each category, including requests for materials. Please also share any sources of budget supplementation that will be pursued for the project (ie departmental or outside funding sources). Up to one page, justification for budget inclusion items

a. **Budget and Budget Justification Documents Should Include:**

- i. **Personnel**
- ii. **Consultant Costs**
- iii. **Supplies**
- iv. **Travel**
- v. **Other Expenses**

b. **Guidelines:**

- i. **Travel cap \$1,000**
- ii. **PI Salary support cap 10%**
- iii. **At least 60% of funding must be applied towards non-personnel costs**

VII. **Supporting Documents:**

- a. Biographical Sketch of all principle and co-investigators ^[1]_{SEP} (NIH format)
- b. Letter from Department Chair
- c. IACUC and/or IRB approval if already granted ^[1]_{SEP}
- d. Resources and equipment

AWARD GUIDELINES

Budget expenses can be used for materials and supplies, data and data analysis costs, salaries for research assistants working on the proposed project, publication costs, as well as reasonable time for the principal investigator. A portion of the budget can be allocated for salary support of the collaborators and/or consultants. Travel expenses, institutional indirect/overhead costs, construction expenses, and secretarial or office expenses will not be funded.

REVIEW CRITERIA

Applications are judged on merit and grants may be awarded until the funding allocation for this announcement is reached.

Completed applications will be distributed to the members of the SIO special study-section and, members will be assigned as primary reviewers based on their expertise in the particular area of the proposed investigation. Funding decisions will be made and approved by the SIO Grant Review Committee. Applicants will be notified of application status upon final funding decisions, anticipated by late November 2023. Awardees will be publicly announced prior to the SIO 2024 Annual Meeting. Award winners will be expected to present their proposals in-person at a designated session during the SIO2024 Annual Scientific Meeting.

Funding decisions are based on the overall impact/priority score which reflect assessment of the likelihood for the project to exert a sustained, powerful influence on the fields of interventional and immuno-oncology based on the following review criteria and additional review criteria:

1. *Significance to Interventional Oncology and Immunotherapy.* Does the project combine locoregional image-guided therapy of liver cancer with immunotherapy to address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will this research impact outcomes for both interventional oncology and immuno-oncology?
2. *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?
3. *Approach.* Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Is there a concrete plan to reproduce pre-clinical research findings in a clinical trial or other already established animal model to increase validity?
4. *Investigator.* Are the PI, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, or in the early stages of independent careers, do they have appropriate experience and training or appropriate mentors/collaborators? If established, have they demonstrated an ongoing record of accomplishments that have advanced interventional radiology?
5. *Environment.* Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

In addition, the review committee will take the following factors into consideration as applicable to the proposed project:

Budget and Period of Support. Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

Letters of support. Letters of support from industry and/or memorandums of understanding with

collaborators will be taken into consideration.

PAYMENT SCHEDULE

Once grant agreements and documentation of IRB and/or IACUC approval have been submitted by successful applicants, awarded funds will be transmitted to the institution for support of the grant recipient and the project. Funds will be distributed in three installments: 40% at the start of the project, 30% upon receipt of a satisfactory six- month progress report, and 30% upon receipt and approval of a cover letter and the final report in manuscript format.

REPORTS

This is a rapid high priority award mechanism. An interim progress report is required after the first 6 months of the project. A final report is required no later than 12 months after the award is made. This report should be a one- page synopsis of the progress, unforeseen problems, and results to date. A final written report must be submitted within sixty (60) days of the project's completion. All reports will be shared with AstraZeneca. Included with the report should be a cover letter that:

1. Indicates the significance/possible impact of the results.
2. States whether the results will be submitted for possible publication, and if so, to which journal.
3. Indicates whether results will be used to apply for additional funding from other sources, and if so, the funding agency and date of application should be included.

PRESENTATIONS/PUBLICATIONS

Presentation of research results at the SIO Annual Scientific Meeting in a highlighted research session will be required.

It is expected that the recipient will submit findings to a peer-reviewed publication. All posters, oral presentations, and eventual publications must contain appropriate acknowledgement of the SIO and AstraZeneca's support.

COST EXTENSION POLICIES:

Cost Extensions for both one-year pilot grants and two-year larger grants are discouraged, but will be reviewed on a case by case basis.

MODIFICATION OR TERMINATION OF SUPPORT

SIO reserves the right to modify or terminate the amount of any funds granted under the terms of the Research Grant. Generally, such action would be based on the awardee's receipt of support from sources other than SIO Foundation which might (1) limit the ability of the recipient to successfully complete the terms of the award or (2) obviate the recipient's need for funding from SIO.

In the event that the awardee relocates to a different institution, a request in writing to relocate the grant to the new institution may be made to the Director of Research at the Foundation's address. The SIO will continue project funding provided the awardee is guaranteed support, protected research time, and adequate equipment/facilities from the new institution (i.e., letter from department chair) as well as IRB or IACUC approvals, if applicable. If the new institution cannot provide the necessary support or regulatory approvals for the project, the original institution may appoint a new principal investigator, with SIO's approval, to complete the project. If the project cannot be completed at the new or the original institution, then all unexpended funds must be returned to SIO.

COMPLETED APPLICATIONS SHOULD BE SUBMITTED IN PDF FORMAT VIA SIO's GRANT SUBMISSION PORTAL BY 18 SEPTEMBER 2023 MIDNIGHT EASTERN TIME, LOCATED HERE:

<http://www.sio-central.org/page/apply-for-grant>