Biomedical Research Collective (BRC): Enhancing the Interdisciplinary Approach to Translational Scientific Inquiry - an RM1 Pilot Program

Version 1.10.26.22

Prior to submitting an application, all applicants are required to contact Dr. Lyle Moldawer (moldawer@surgery.ufl.edu) **and/or Dr. Philip Efron** (Philip.Efron@surgery.ufl.edu) **with a Letter of Intent (LOI). The LOI is due by December 1, 2022. The following items should be included in the letter:**

1. **Your name, title, email, department.**
2. **Short summary of the research plan, tentative timeline.**
3. **Relevance of the application to the overall SCIRC goals described in this Request for Applications (RFA). Also, a brief description of how you will incorporate an interdisciplinary approach should also be included.**

Introduction

The Sepsis and Critical Illness Research Center (SCIRC) in the Department of Surgery at the UF College of Medicine is seeking applications for innovative, interdisciplinary pilot programs which address the short- and long-term consequences of critical illness. The purpose of this program is to provide pilot grants, core resources, and mentoring, as well as to foster a collaborative community, all which will support research which advances outcomes in sepsis, severe trauma, burns and critical illness.

Successful pilot applications will address questions pertaining to: 1) mechanisms behind the pathophysiological response to critical illness, 2) biomarkers and endotyping of critical illness, 3) use of novel technologies including, but not limited to, nanotechnology, multiomics, the microbiome, and artificial intelligence to identify individuals susceptible to complications from critical illness, as well as responsiveness to unique interventions, 3) novel therapeutics targeting not only survival, but the long-term consequences of critical illness, such as physical, functional and cognitive decline or sepsis recidivism, and, 4) novel pre-clinical animal models and experimental approaches for the diagnosis and treatment of critical illness that can be rapidly moved into the clinical setting. Successful applications will foster partnerships between research faculty and the SCIRC, forming mutually beneficial relationships that strengthen applications for federal grants.

SCIRC has successfully partnered with faculty to write proposals and execute research plans for several large-scale federal grants, ranging from $10 to $25 million dollars. We have experience working closely with collaborators and navigation of the logistics that complement a faculty member's expertise in conducting research. SCIRC is highly invested in being on the cutting- edge of research, advancing the trajectory of research to practice outcomes, identifying innovative solutions and translating them into real world tools for practitioners in a diverse, global community.

Please see the eligibility section below for further examples of foci that would apply to this request for applications.

Purpose: The overarching purpose of this program is to provide transitional financial and infrastructure support for the development of novel new approaches to the diagnosis and treatment of critical illness resulting from sepsis, severe trauma, burn injury or other pathology that is associated with poor long-term outcomes.

Evaluation & Criteria: Applications will be reviewed by the SCIRC Research Advisory Committee, and confirmed by the Steering and Internal Advisory Committees. The review will be based on the following criteria:

1. Highly significant, strong methodological approach, demonstrated scientific merit and innovation.
2. Relevance to the overall programmatic goals of SCIRC aimed at improving the diagnosis and treatment of critical illness resulting from sepsis, severe trauma, and burn injury.
3. Potential to result in subsequent independent peer-review funding. A section is required to describe the aims of the subsequent project and to outline how the award will provide support for subsequent funding applications.
4. Multidisciplinary investigative team.
5. Environment and use of SCIRC Center Cores and/or Clinical Research Facilities.
6. Budget and timeline appropriateness.
7. Junior or early stage investigator (ESIs) involvement and level of mentoring offered to Junior Investigators.

Information Session

- For those interested in applying for such funding, attendance at an information session, by zoom, is strongly recommended. Additional information about the date and time of such an information session will be available at a later date.

Core Resources

- Offering core resources to facilitate the applicant's research. This includes the following: 1) clinical research support including research nursing, and development of an electronic case report form from the Clinical Studies Core, 2) laboratory support including proteomics, transcriptomics and cell phenotyping from the Bioanalytical Core, and, 3) study design and statistical assistance from the Data Management and Biostatistics Core.
- Applicants are not required, but encouraged to include core services in their application.

Eligibility

- The principal investigator on the proposal must be a faculty member in either the College of Medicine, College of Dentistry, College of Nursing, College of Pharmacy, College of Health Professions and Public Health, College of Engineering, or the College of Human Performance. Applications from any other UF College must be approved by the Center Director prior to submission.
- The principal investigator on the proposal must be a UF Faculty member, post-doc fellow (not already in a fellowship), ESI, or junior faculty. *Please note, current K awardees are not eligible to apply.*
    - **Eligible Individuals (Program Director/Principal Investigator):** Early Stage Investigators (ESI) who will direct these pilot programs will not lose ESI status.
    - **Facilities and Other Resources:** Since proposed pilot studies cannot provide funds for mentoring and training, guidance for these investigators is expected to come from existing resources.
- If the grant proposal is selected by the funder, the principal investigator and SCIRC will continue to partner to execute on the plan as outlined in the grant proposal, and the principal investigator will become an "affiliate faculty member" to the SCIRC, if not already a member or affiliated with the center.
- Since funding for these projects are pass-through funding from the National Institute of General Medical Sciences, indirect costs will be allocated according to SCIRC and UF policies. Consistent with SCIRC policies, principal investigator allocations will be returned to the pilot program director, while department and center indirect costs will be returned to SCIRC.
- Examples of foci that could be addressed include, but are not limited to:

    - Biomarker development that can be applied in a critical care setting where timely results are required. This may include discovery phases, such as foundational transcriptome, metabolome or proteome analyses.
    - Studies aimed at dissecting individual components of the host response to critical illness as a means to mitigate adverse clinical outcomes.
    - A better understanding of environmental and genetic factors that predispose patients to critical illness and adverse outcomes, or play a role in the pathology of adverse outcomes. This would also include sexual dimorphism or age-related differences, as well microbiome-related pathology.
    - Novel techniques, including machine learning and artificial intelligence, to either direct interventions, classify, endotype or phenotype critically ill patients, including those status post sepsis, severe trauma, burns or polytrauma.
    - Novel therapeutics or delivery systems for intervening on specific components of the response to critical illness.
    - Long-term physical, functional and cognitive changes associated with critical illness including aberrant pain responses.

- Racial, ethnic, and/or gender/sex disparities in the incidence and outcome from critical illness.
- Development of novel animal, in vitro or in silico models of critical illness that can be used to develop and test novel hypotheses.

Terms of Award

- Awardees must comply with IRB, UF, NIH, and other applicable policies and regulations. Awardee projects involving human subject research must receive IRB and NIH approval before funds can be released and human subject research activities can begin. Applicants whose proposals will require IRB or IACUC approval should demonstrate that they have taken preliminary steps to prepare submissions to avoid delays in securing approval. Funding cannot be released until appropriate approvals are in place.
- Awardees will agree to present their data related to this at the yearly SCIRC Research Forum as well the yearly Department of Surgery Research Day. Neither of these forums preclude presentation the same data at other local, national or international meetings.
- Awardees are also expected to timely publish their findings in scholarly journals, and to make deidentified data and surplus biological samples available to the scientific community through the UF CTSI Biorepository, consistent with SCIRC policy. In accordance with NIH requirements: All presentations and publications resulting from work funded by a SCIRC Pilot Project Award must include a funding citation. The following language should be used:

  "Research reported in this publication was supported by NIH/NIGMS Grant project RM1 GM139690. The conclusions and opinions contained within represent those solely of the authors and do not reflect either the National Institute of General Medical Sciences or the Sepsis and Critical Illness Research institute."

- Awardees are expected to provide updates to the SCIRC in a timely manner, along with an annual progress report for the life cycle of the grant.

Review Process

Upon passing an initial eligibility review, proposals will undergo scientific review by the SCIRC Research Advisory Committee. The committee will consider the following criteria in making funding decisions:

- Addresses a significant topic related to the overall mission of the Sepsis and Critical Illness Research Center.
- Scientific merit (i.e., significance, innovation, methodology).
- Shows significant promise for leading to external funding, and to development as a principal investigator.
- Feasibility based on the experimental design and efforts indicated, appropriateness of the budget.

The SCIRC Research Advisory Committee reserves the right to request additional clarifications or revisions to a PI's budget prior to recommending the proposal for funding.

Budget, Budget Narrative, and Spending Requirements

- Funds can only be used for direct costs.
- Funds cannot be used to support faculty salaries.
- Funds cannot be used for computer purchases.
- Funds cannot be used for travel.
- Funds are non-transferable.
- Funds must be used for the activities detailed in the application within the funding period.

Total Available Funding and Award Amounts

We expect to award up to two pilot grants in the first year of this program. The requested budget should reflect the scope of the proposed research. Matching funds from other sources to support the work are encouraged. Total budget costs may be budgeted for one- or two-year projects. Funding for basic or translational science studies is capped at $100K, and clinical studies are capped at $150K. Applications for pilot studies follow the standard format of NIH applications (SF424).

For clinical investigations, applicants should develop budgets based on the number of subjects to be enrolled, the estimated cost per subject, and any other services required by the protocol. All budgets will be judged on appropriateness for completing the proposed work.

Application Requirements

Letter of Intent

- One-page document on the principal investigator's letterhead providing title, participating investigators and a one paragraph summary of the proposed application.

Full Applications

Applications must include the following:

- SCIRC RM1 Cover Page

Prior to the commencement of any exploratory pilot studies, the following documentation must be submitted to NIGMS staff for administrative review six weeks before the requested start date, using PHS398 forms (SF424) and instructions:

- Face page (signed by institutional signing official).
- Project Summary (page 2) (30 lines).
- Specific Aims (1 page).
- Research Strategy section
    - Research proposal (6 pages).

    - Rigor and transparency: As appropriate, include a description of the scientific premise for the proposed project, including consideration of the strengths and weaknesses of published research or preliminary data crucial to the support of project, and a description of the experimental design and methods proposed and how the investigator will achieve robust and unbiased results. If applicable, also include a brief description of the methods to ensure the identity and validity of key biological and/or chemical resources used in the proposed project. See Notice NOT-OD-16-011 (https://grants.nih.gov/grants/guide/notice-files/NOT-OD-16-011.html) for details.
- Biographical sketch of lead investigator of pilot study and other key personnel.
- Pilot study PIs must not be added to the multi-PD/PI Leadership Plan for the overall collaborative program, and therefore, will retain their ESI status.
- Inclusion of an External Advisory Committee (EAC) and their approval – EACs are optional unless clinical research is proposed. If proposed, the EAC is required and communication from the EAC chair (at a minimum) indicating that the EAC concurs with supporting the pilot studies must be included.
- If the proposed study involves human subjects, the following documents must be submitted to NIH: Plan addressing the risks and protections for human subjects, in accordance with NIH's Instructions for Preparing the Human Subjects Section of the Research Plan (https://grants.nih.gov/policy/humansubjects.htm).
    - Institutional Review Board (IRB) approval.
    - Human Subjects education certification.
    - Create Inclusion Data Record (IDR) and enter inclusion data in Inclusion Management System (IMS).
- If the study involves Vertebrate Animal, Institutional Animal Care and Use Committee (IACUC) approval and the Vertebrate Animal Section must be submitted.

Additional Information Required

- A detailed budget using the NIH's standard "Detailed Budget for Initial Budget Period" form.
- Detailed budget justification.
- Letter of support from Department or Program Director.

Deliverables

- Proposal prepared for submission to a specific external funding agency.
- Final report of a pilot test of research methodology (e.g., results of preliminary validation).
- Manuscript submitted for publication that disseminates results of project.
- Acceptance to a regional or national conference to disseminate findings and represent UF as a leading research institution.
- Contribute context to three Research Spotlight stories to be shared on the SCIRC website and/or Dept of Surgery social media platforms.

Internal Timeline & Important Dates

Release Date: November 1, 2022.

Letter of Intent Due: December 1, 2022 *(the letter of intent is required)*.

Full Application Due upon invitation: March 1, 2023 *(required*).

SCIRC Research Advisory Committee Review Period: March 1-15, 2023.

NIH NIGMS Review Period: March 15- May 1, 2023.

Announcement of Awards: June 1, 2023.

Funding date: July 1, 2023.

Letters of Intent and Completed Application must be submitted as individual single-file PDFs to the SCIRC Pilot Program at (Amanda.Reifenrath@surgery.ufl.edu).

Any additional questions regarding this pilot program or SCIRC activities should be directed to Amanda Reifenrath, SCIRC Program Manager, at (Amanda.Reifenrath@surgery.ufl.edu).

Attachment 1

SCIRC RM1 Pilot Program

Cover Page

Principal Investigator (PI):_____

Co-Principal Investigator (Co-PI):_____

PI UFID Number:_____

PI Campus Address:_____

Telephone (office):_____

Project Title:_____

_____

Requested Total Amount of Funds _____

_____ _____

PI Signature (date) Co-PI Signature (date)

_____ _____

Dept Chair (date) Dept Chair (date)

If more PIs and/or Department Chairs are signing, please include on an additional sheet.

Do Not Complete – For SCIRC Research Advisory Committee Use Only
TOTAL FUNDS REQUESTED = $_____ ***TOTAL FUNDS APPROVED*** = $_____