



Release Date: May 24, 2024

Request for Applications (RFA): [Vermont Center for Cardiovascular and Brain Health](#) Fostering Innovative Research Excellence – FIRE Grants

I. Overview of the VCCBH and Rationale for Pilot Grants

Cardiovascular disease and stroke are leading causes of death and disability in the United States and are intimately related to cognitive impairment and dementia. The Vermont Center for Cardiovascular and Brain Health” (VCCBH) seeks to expand UVM’s capacity to conduct research to reduce death and disability from these diseases through diverse, mutually reinforcing basic, clinical and population science perspectives. A core mission of the center is to provide support for early career investigators to conduct research that propels them to independence (in the form of an R01-equivalent grant award) using team-based interdisciplinary mentorship, access to our research cores and our FIRE Grant Program. The latter (previously known as Interdisciplinary Pilot Grant Program) will provide significant resources to foster interdisciplinary programs for faculty through an award of \$180,000 over a two-year period. For this call for applications, we are expanding eligibility beyond the “first independent step” career level. Applicants are required to use one of our Cores, the Study Design and Molecular Epidemiology Core, or the Customized Physiology and Imaging Core. Access to these cores will advance grantees’ skills in study design, epidemiology, translational research, imaging, experimental instrumentation, and electrophysiology.

Please read this RFA carefully as it contains important information about eligibility and peer review criteria. If you have questions, or if you would like assistance identifying collaborators or resources to enrich your research application, please contact Dr. Owen Nadeau, Operations Administrator of the VCCBH at Owen.Nadeau@med.uvm.edu. We encourage you to start early in order to produce the most competitive application possible.

II. General Requirements for the VCCBH FIRE Grants

Any full-time faculty member at UVM who meets other criteria may apply for a FIRE Grant. Early Investigators without previous R01-equivalent funding, former and current VCCBH Peer Mentors, and former VCCBH Research Project Leaders may apply. We seek to fund cross-disciplinary research that will lead to extramurally funded research to impact our understanding of Cardiovascular and Neurovascular diseases. Department chair matching funds are required. We plan to award up to 2 FIRE Grants for no more than \$180,000 in this call. Support for up to \$90,000 each year. Funding for Year 2 will be contingent on meeting benchmarks in Year 1. Both the first and second year of funding are subject to the VCCBH External Advisory Board (EAB) approval. Multiple-PI (MPI) applications with two PIs are preferred but sole PI applications will be considered. We encourage the MPIs to be from different backgrounds.

- Applications should meet each of the following expectations:
 - address a major issue in cardiovascular or neurovascular research.
 - have scientific excellence and rigor.
 - be innovative and of high impact, consistent with NIH review guidelines.
 - have a research strategy that leads to published manuscripts. The plan must be provided.
 - lead to high likelihood of obtaining extramural funding. The strategy must be provided.

We encourage applicants to consult with our Core Directors early in the preparation of their application. Allocation of Core effort to assist in grant preparation will be available on a first-come first-served basis. Brief descriptions of the Cores and weblinks are included on page 6. Contacts:

- Study Design and Molecular Epidemiology:

- Lab component: Dr. Peter Durda (Peter.Durda@med.uvm.edu)
- Study design, epidemiology, biostatistics: Dr. Neil Zakai (Neil.Zakai@med.uvm.edu)
- Customized Physiology and Imaging: Dr. Todd Clason (Todd.Clason@med.uvm.edu)

III. VCCBH FIRE Grant Eligibility

- Applicants will be early-stage investigators (no prior R01-equivalent funding), current or former VCCBH Peer Mentors, or former VCCBH Research Project Leaders. They must be full-time faculty members at the assistant/associate professor or faculty scientist level.
- If an applicant has not already been a Research Project Leader or Peer Mentor, they should be in the Pipeline Investigator program of this Center, but this is not required. To learn more or request to join the Pipeline, email Dr. Nadeau at the above address.
- Only one application is allowed per PI or MPI.
- The selection committee will prioritize MPI applicants involving new cross-disciplinary and cross-departmental / college research. For such MPI applications, the conceptual development and execution of the project should be shared equally by each PI.

IV. Application Instructions and Review Processes

1) The first step is to get approval of your Chair (Chairs if MPIs). A signed letter of assurance is required from the Chair(s) that their department(s) will provide matching funds. VCCBH provides 50% of the budget and Chairs contribute 50%. *Many Chairs are aware of, and supportive of the program. We are happy to assist you in communication with your Chair. Contact Owen Nadeau for this.*

2) The FI Application packet is due July 24, 2024. It must include the following sections. Applications not including each point here may be administratively withdrawn.

- Cover page:
 - Title of the project
 - If applicable, a statement that IACUC or IRB approval will be obtained prior to the Aug 1 start date of project.
 - Budget requested
 - Indication of core usage
 - PI Assurance: I certify that the statements herein are true and accurate to the best of my knowledge. I agree and accept responsibility for the scientific conduct of the project and to provide the required progress reports if the grant is awarded.
 - Signature of the applicant(s).
 - Chair Assurance and Signature of the applicant(s)' Department Chair(s)

Using PHS398 forms and instructions, the following sections are required:

- Title Page with project title, investigator and mentor names and departments
- Project Summary (Page 2)
- Specific Aims page (1 page) that includes the following:
 - Clear statements of the aims and hypotheses being tested.
 - We recommend a central figure illustrating the project aims.
 - We recommend a limit of one to two specific aims that can reasonably be completed within the funding period.
- Research Strategy (6 pages) that includes the following subsections:
 - Background and Supporting Literature (<1 page): state the research problem, with review of relevant literature.
 - Significance (<1 page): briefly describe how the proposed research is novel in approach, methodology, theoretical concept or intervention, with a brief description of how environment will contribute to probability of success.

- Innovation (<1 page): illustrate how this research challenges and seeks to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches, methodologies, instrumentation or interventions.
- Preliminary Data (<1 page): if available, provide this to assist the reviewers in determining the feasibility and justification for the project. Preliminary data in some cases may not be directly related to the proposed research but will demonstrate feasibility and your expertise.
- Research Design and Methods (2-4 pages):
 - Provide the methods proposed to address the proposed aims. The experimental design should provide a clear explanation of key methods and data analysis approaches (including statistical analysis plan and power calculations).
 - Discuss usage of VCCBH Cores.
 - Present the strategic plan for how the proposed research and its results will increase competitiveness for a new extramurally funded research grant.
 - All applications must discuss consideration of sex as a biological variable. If applicable, provide information on consideration of race/ethnicity.
 - Provide a timeline for the proposed research and submission of an extramural grant application.
 - Describe any perceived scientific overlap with existing funded research, and if there is a perception of overlap, why it isn't present.
 - Provide a list of anticipated manuscripts.
- Mentoring Plan (<1 page)
 - For applicants who have not yet had R01-equivalent funding, provide a mentoring plan. We require 2 senior mentors, optimally from different disciplines. *If you require assistance identifying a mentor, please contact Dr. Nadeau.*
- References (no page limit)
- Animal and/or human welfare assurance if applicable (no page limit) see PAR-18-266 and [SF424 \(R&R\) Application](#) for instructions.
- Budget with detailed justification. The budget is limited to no more than \$90,000 annually, inclusive of all costs (i.e., fringe if salary is requested).
 - Present the budget in tabular form as no more than one page. The budget should be reviewed by your department's business manager to ensure accuracy.
 - PI salary is an allowable budgetary item up to 15% effort annually for each MPI at the NIH cap (fringe will be applied, please confirm rates with your Department Administrator).
 - Provide detailed budget justification of less than one page (use of salary as a budget item will require assurance that the other funds are sufficient to complete the project).
 - Provide details for use of Research Cores, including all associated fees (i.e., study design, biostatistical support, laboratory assays, instrument usage and training).
 - Travel may not be included in the budget unless this is necessary for collaboration or learning new skills and techniques that require in person experience, with strong justification.
 - Conference travel is not allowed. Note, the Cardiovascular Research Institute of Vermont provides travel grants.
 - Publication fees, including article processing charges for open access publishing, are allowed.
- NIH 5-page Biographical Sketches for PI/MPIs, other key personnel, and mentors (if applicable)
- Senior Mentor letters if applicable (*applicants who have not had R01-equivalent funding require mentors*):
 - Each mentor should provide a letter of <1 page describing their experience as a mentor, relationship to applicant(s), and brief mentoring plan.
- Core Director(s) support letter.

- This brief letter (<1/2 page) should attest that the involved Core Director is aware of your project and approves the budget related to Core usage.
- All documents must be prepared in 11-point Arial font with 0.5-inch margins, be assembled into a single PDF in the order listed above and submitted via email (Owen.Nadeau@med.uvm.edu). Please note that the application ***should not be sent to SPA***,

V. Evaluation

- VCCBH leadership will solicit the input of qualified reviewers to hold a study section.
- Applications will be scored using a NIH-style Overall Impact Score from 1 (outstanding) to 9 (poor).
- Reviewers will be encouraged to comment on the following individual criteria: significance, innovation, investigator(s), environment, approach, potential for extramural funding, potential for enhanced productivity. Summary Statements of the written critiques will be provided to the applicants.
- The EAB must approve the funding decision.

VI. Evaluation Criteria

- Primary considerations:
 - Does the proposal address a significant problem in Cardiovascular and Brain Health?
 - If successful, will the results have a substantial impact on the field?
 - Is the proposed research innovative?
 - Is the proposed research achievable during the funding period?
 - Is the investigator(s) qualified to lead the proposed research?
 - Are there two PIs? Are they from different backgrounds? (both are encouraged but not required)
 - Does the proposed research have high potential to lead to future extramural funding?
 - Does the proposed research use one or both VCCBH Research Cores
 - Is adequate mentoring planned?
- Examples of a responsive application might include (but are not limited to):
 - Gathering proof-of-concept or feasibility data for a larger extramural grant application.
 - New research topics and directions.
 - Innovative technology development.
 - New collaboration among basic, clinical and/or population science.
 - Development of new methodologies, assays or biological / pathological systems needed to apply for R01-equivalent funding.

VII. Funding Contingencies

- At month 9 of the award, a progress report will be due, with Year 2 funding awarded contingent on adequate progress, and on EAB approval. We discourage requests for carry forward, but will allow carry forward of up to \$30,000 from Year 1 into Year 2 only.

VIII. Awardee Requirements

- The PI will submit projects for approval to the IACUC or IRB as necessary. Funds will not be released until the project is approved by the IRB or IACUC so we suggest approval be sought upon application.
- The PI is required to attend a VCCBH Monthly Research Project Update Meeting and present twice a year during the funding period.
- The PI is required to present their work at the VCCBH Annual Symposium each year during the funding period.
- The PI is required to attend the monthly VCCBH Conference, Journal Club, and Annual Symposium to engage with others in the Center to grow collaborations.
- The PI is required to acknowledge the VCCBH Grant support on all publications resulting from the research using the following text: *Funding was provided by P20 GM135007 from the National Institute of General Medical Sciences of NIH.*
- A final progress report is due 60 days before the end of the funding period in Year 2.

IX. Action Dates

- RFA Announced May 24, 2024
- Application due: July 24, 2024, 5 pm eastern time. Email to Owen.Nadeau@med.uvm.edu

X. Restrictions

- If an investigator has departmental or extramural funding, the specific aims of the proposed research should be distinct from already established support and the application should clearly establish the need for additional funding.
- An investigator can only obtain the VCCBH FIRE Grant or Interdisciplinary Pilot Grant once.
- An applicant who is unsuccessful in obtaining a VCCBH Pilot Grant may, in subsequent years, resubmit the same or a similar application or a substantially different application.

XI. Questions

- Dr. Owen Nadeau, Operations Administrator, VCCBH (Owen.Nadeau@med.uvm.edu).

Research Cores: Vermont Center for Cardiovascular and Brain Health

[**The Study Design and Molecular Epidemiology Core**](#) provides services unavailable elsewhere at UVM, including up-front and ongoing assistance to users on their study design, data analysis plans, biostatistical support and data reporting. Active learning approaches are applied. It draws on the [**Laboratory for Clinical Biochemistry Research**](#) (LCBR) resources, including in developing and conducting assays, and accessing a biorepository with >4 million aliquots of biological samples from >100,000 research participants. It will identify LCBR resources and studies to afford effective translation of VCCBH Investigator findings to population or clinical research settings. This allows basic science-oriented VCCBH Investigators to translate their findings to human populations; for epidemiology and clinical-research oriented VCCBH Investigators to scale their findings to large populations; and engagement in outcomes research. Assistance is also provided to collect, store, and analyze newly collected biological samples, and has a large array of assay capability. The Core has a new OLINK proteomics platform that measures 48/92 protein panels in human and murine samples. This allows cost-efficient discovery science. Core co-Directors are Neil Zakai, MD, MSc (Associate Professor of Medicine and Pathology & Laboratory Medicine) and Peter Durda, PhD (Faculty Scientist, Pathology & Laboratory Medicine).

*Pilot Awardees are provided up to 6 hrs. of biostatistician time annually on a first-come, first-serve basis. Pilot Award recipients will budget in their application for study design, assay reagents, laboratory technician time and statistical support if their need is greater than resources offered through the Core.

[**The Customized Physiology and Imaging Core**](#) provides state-of-the-art capabilities for fixed and live cell and in vivo imaging, the capability of simultaneous electrophysiology, on-site fabrication of needed devices, and analysis services. This Core provides extensive training to users by providing high-level pre- and post-experiment technical and analytical support. This enables investigators to perform sophisticated imaging / electrophysiological experiments that are not possible in their own laboratories or elsewhere on campus. Investigators are provided training to develop a deep understanding of the microscopes and electrophysiology instrumentation so that they have the capability and flexibility to tailor the experimental system to answer key questions. Coupled with that, investigators are encouraged to learn design principles of chambers, holders, and other key accessories and their fabrication by 3D printing to optimize experimental approaches. Lastly, investigators are provided training to learn sophisticated image and electrophysiological analysis to maximize extraction of critical information. The Core has a new Iconeus 100 ultrafast ultrasound that has capability for deep brain (or other locations) high resolution live animal imaging. This Core is directed by Mr. Todd Clason, MS (Department of Pharmacology).

* Pilot awardees are provided free consultation and training on Core instrumentation, as well as discounted hourly fees for equipment access. They will budget in their application to offset imaging costs, should investigators need extensive instrument time.

Cover Page (*must be included in application*): **Vermont Center for Cardiovascular and Brain Health Interdisciplinary Pilot Grants.**

Project Title:

If applicable, a statement that IACUC or IRB approval will be obtained prior to the Aug 8 start date of project.

Total Budget requested.

Year 1:

Year 2:

**Indicate briefly in bullet form how you will use Research Cores (or state, “use not proposed”
Study Design and Molecular Epidemiology**

Customized Physiology and Imaging

PI Assurance:

I certify that the statements herein are true and accurate to the best of my knowledge. I agree and accept responsibility for the scientific conduct of the project and to provide the required progress reports if the grant is awarded.

Name and Signature of the applicant(s).

Chair Assurance:

I approve submission of this application and agree to provide matching funds of 25K/awardee/year.

Name Signature of the applicant(s)' Department Chair(s)

Contact information (name, email, best phone number for each PI):

Some VCCBH Senior Mentors: Vermont Center for Cardiovascular and Brain Health

George Wellman, PhD, Professor of Pharmacology; George.Wellman@med.uvm.edu

Marilyn Cipolla, PhD, Professor, Neurological Science; CVRI Board Director, Marilyn.Cipolla@uvm.edu

Ira Bernstein, MD, Professor and Chair, Obstetrics & Gynecology; Emeritus Senior Associate Dean for Research, UVM; CVRI Board Director, Ira.Bernstein@med.uvm.edu

Sayamwong Hammack, Professor, Psychological Science; Associate Director of the Undergraduate Neuroscience Program, Sayamwong.Hammack@uvm.edu