



Rays of Hope Center for Breast Cancer Research

Request for Proposals 2017

The Rays of Hope Center for Breast Cancer Research at Baystate Medical Center is partnering with the UMass Center for Clinical and Translational Sciences to invite research proposals addressing the diverse needs facing patients and clinicians. Environmental factors are responsible for more than 70% of breast cancer risk. These include lifestyle and reproductive factors (pregnancy, obesity, shift-work) as well as exposure to environmental chemicals. Although inherited risk alleles contribute a smaller proportion of overall risk, these define pathways that render the breast epithelium vulnerable to carcinogenesis. Mechanistic studies designed to understand the complex interactions that alter risk of breast cancer or regulate progression to invasive and metastatic disease are needed to develop approaches to limit the burden of breast cancer. This includes more precise diagnostic tools and therapies as well as interventions designed to improve the lives of breast cancer survivors. The forms and contact information are available at <http://pvlsi.org/featured-stories>. Examples of areas particular interest are below.

Biomarkers of risk and mechanisms of susceptibility:

- Biomarkers and diagnostic tests to better predict progression from benign to invasive cancers.
- Gene x environment interactions that may define individuals who are sensitive to environmental chemicals.
- Epigenetic mechanisms regulating risk and resistance to breast cancer.
- Roles of inflammation and immune system in altering the initiation and progression of breast cancers.

Development of innovative tools:

- Employing patient-derived cells and tumors to develop improved research models.
- Development of cell-based screens to improve pre-clinical drug testing.
- Platforms to improve drug delivery and pharmacodynamics.
- Wearable sensors to aid clinical monitoring and decision-making.
- Methods targeting metastatic breast cancer.

Patients and survivorship:

- Studies to improve quality of life among survivors.
- Behavioral and nutritional interventions to improve tolerance and success of chemotherapy regimens.
- Tools to aid lifestyle decisions in the community related to modifiable risk factors and environmental exposures.

Background: The Rays of Hope Center for Breast Cancer Research (RoHCBCR) was created in 2011 to support research projects leading to tangible improvements in prevention, diagnosis or treatment of breast cancer. The Center was provided substantial support through the fundraising of dedicated advocates of breast cancer research and the participation of thousands in Western Massachusetts. The Center together with the PVLSI developed the infrastructure to catalyze multiple projects and allow concepts developed in model systems to be validated rapidly in patients. Projects utilizing these resources will be given preference.

The Patient Registry offers opportunities to study clinical practice and lifestyle and behaviors that can modify breast cancer risk and outcomes. Patient tissues and primary cell cultures are also available through the Biospecimen Resources and Molecular Analysis Core at the PVLSI. Patient questionnaire data can be

interrogated to identify patients or patient samples for studies. Collaborative studies among investigators using a common set of resources (patients or tissues) to examine multiple endpoints would be an especially productive use of the grant funds that are available. Therefore, investigators with complementary interests are encouraged to submit shared projects or note the overlap among independent submissions. A description of the Breast Research Patient Registry and tissue resources is provided below.

Funding Description: Funding requests should be limited to projects feasible for <\$25,000/year for 1-2 years. Proposals with similar focus can be submitted with linkage being noted, but will be reviewed as independent proposals. Multi-year funding will be contingent on annual review of progress. Interested individuals should feel free to contact Joseph Jerry or Grace Makari-Judson to discuss potential applications. The resources available and list of prior awards is available at <http://pvlsi.org/rays-of-hope>.

May 15, 2017 --- Release of the Request for Proposals.

August 4, 2017 --- Deadline for applications at 4 pm EST.

September 18, 2017 --- Anticipated notification of awards.

Project start date: November 1, 2017.

We expect to fund 4-8 projects depending on the size and duration of requests.

Format for applications:

- The formatting guidelines for NIH R03 and R21 proposals should be followed (0.5 inch margins, font size of 11 or larger) but limited to a total of 5 pages as described below. Guidelines can be found at http://grants.nih.gov/grants/writing_application.htm.
- Proposals should include the following sections.
 - Specific aims (1 page)
 - Research strategy (limited to 4 pages encompassing the following elements)
 - Background and significance
 - Impact and/or innovation --- Please address how the project is appropriate for funding by the RoHCBCR (local impact, development of resources or expertise). Also address outcomes such as development of intellectual property, grants from federal or industrial sponsors, publications.
 - Experimental overview --- Please describe how the research will be carried out and the expected outcomes. Preliminary data can be included in this section.
 - For human tissue studies, indicate the number of specimens anticipated. Consult Dr. Sallie Schneider (Director, Biospecimen Resources and Molecular Analysis) at the PVLSI for availability of specimens.
- NIH style Biosketch of investigator(s) --- see <http://grants.nih.gov/grants/funding/424/index.htm>.
- Estimated budget for each year (budget template file is available at <http://pvlsi.org/featured-stories>)
 - Personnel – list individually with % effort; list curriculum fees as “Other costs”
 - Fringe benefits – list for each individual
 - Equipment --- list individually
 - Supplies (include major categories in the justification)
 - Indirect costs and curriculum fees are not allowed.
- Compile materials and submit as a single pdf by email to Roxanne Labonte at the PVLSI. Her contact information is Roxanne.LaBonte@baystatehealth.org; Telephone 413-794-0523. You can contact her to confirm receipt or for questions.

Review criteria:

- Do projects address critical gaps in the research related to breast cancer risk or treatment?
- Will the project represent a productive use of RoHCBCR patient or tissue resources?
- Do projects develop resources that will advance larger projects and collaborations?
- Will the impact be significant for women locally? Nationally?
- Are projects feasible?
- Will results establish novel tools/reagents or intellectual property?

- Is the project likely lead to extramural funding?
- If prior funding was received, was progress toward extramural funding demonstrated?

Resources available to applicants:

Breast Research Patient Registry

- At present, >850 patients with either benign breast disease or breast cancer have been enrolled. Accrual continues at ~150 patients/year. All patients have been consented allowing access to tissues, re-contact for additional studies and intake/interview data on lifestyle and health history. The questionnaire and summary data can be provided to assist the development of your project. Summaries of data and information in the questionnaires is available at (<http://pvlsi.org/featured-stories>). If you need specific information, contact Roxanne Labonte (Roxanne.LaBonte@baystatehealth.org).
- Fresh, frozen and fixed normal breast tissues have been collected for a subset of breast cancer patients undergoing mastectomy (~15-20/year). Women undergoing reduction mammoplasty (~15-20/year) are also available to provide tissues from cancer-free individuals. Prospective collection of targeted populations can be arranged where appropriate by contacting Dr. Sallie Schneider at the PVLSI.
- Histological sections of breast tissues (normal and cancer) are available through collaboration with pathologists at Baystate Medical Center.
- IRB protocols are facilitated by the RoHCBCR personnel.

Reduction Mammoplasty Tissue Repository (Drs. Sallie Schneider and Joseph Jerry)

- Breast tissues and relevant health information linked to breast tissues.
- Specimens include fresh frozen and paraffin-embedded tissues from the cohort as well as primary cultures.

Biospecimen Resources and Molecular Analysis (BRaMA, Sallie Schneider, Director)

- Coordinate procurement of tissues and blood, primary cultures and storage of patient specimens at the PVLSI. Technical support for histological services and laser capture microdissection.
- The PVLSI has a library of primary cultures of breast epithelial cells and blood samples from >100 women. We continue to collect ~50 additional specimens/year.
- An overview of services and costs are available at <http://pvlsi.org/brama>.

Cellular Metabolism Resource (Dr. Nagendra Yadava; <http://pvlsi.org/nagendra-yadava>)

- Facilities and expertise to support studies on cellular metabolism.
- SeaHorse XF24 Analyzer.

The goals of the UMass Center for Clinical and Translational Science (UMMCTS) are to accelerate the translation of discoveries into practical solutions that improve human health and to develop the next generation of leaders in clinical and translational research. A partial list of resources available through the UMCCTS include (More information about these resources can be found at <http://www.umassmed.edu/ccts/> or by contacting Nate Hafer (nathaniel.hafer@umassmed.edu))

- Tissue Bank <http://www.umassmed.edu/ccoe/core-services/tissue-and-tumor-bank/>
- UMMS research data lake
- REDCap (Research Electronic Data Capture)
- Informatics Core
- Clinical Research Center
- Investigational Drug Service (Pharmacy)
- Conquering Diseases Biorepository
- Conquering Diseases Volunteer Recruitment Core
- Quantitative Methods Core

UMass Amherst and Baystate Medical Center are part of the Breast Cancer and the Environment Research Program (BCERP). Additional resources and background information can be found at <https://bcerp.org/>. The

2013 report by the Interagency Breast Cancer & Environmental Research Coordinating Committee (IBCERCC) provides a comprehensive background and can be found via the BCERP website (<https://bcerp.org/researchers/valuable-reports/>). Contact Sallie Schneider or Joseph Jerry (MPIs) for more information.

Rays of Hope Center for Breast Cancer Research Review Board:

MEMBERS: SUSAN HANKINSON, SCD; GRACE MAKARI-JUDSON, M.D.; WILSON MERTENS, M.D.; JACKIE CAO, M.D.; SALLIE SCHNEIDER, PhD; KATHERINE COLBECK, MHA, CCRP, CPHT; JOSEPH JERRY, PhD, JAY STEINGRUB, M.D.; RICHARD ARENAS, M.D.; TAMARA WRENN, MBA/HCM,CPHQ,CCRP, KATHLEEN ARCARO, PhD;
ADVOCACY COUNCIL MEMBERS: ROBIN FOWLKES, NANCY COKOTIS, AND ELIZABETH CAHN, PHD.
UMMS REVIEWERS TO BE NAMED BASED ON EXPERTISE NEEDED FOR APPLICATIONS
CO-DIRECTORS, RAYS OF HOPE CENTER FOR BREAST CANCER RESEARCH: GRACE MAKARI-JUDSON, M.D. AND D. JOSEPH JERRY, PH.D.