

# Breast Molecular Epidemiologic Resource Newsletter

Issue 3; 2018

*"I want to help future generations." "I believe in research." "I want to do my part in helping learn about this condition."* These are just some of the many reasons patients have shared with us when they decide to become part of the Breast Molecular Epidemiologic Resource (BMER) study. As leaders of the BMER study, it is heartwarming to hear this feedback.



BMER was started in 2010. With your support and participation, BMER has been able to meet many milestones since then:

- Over 1,800 patients have signed up for the study.
- Over 20 research projects have been supported.
- Nearly 4,700 biospecimens have been banked.
- Over 10,000 questionnaires have been returned.
- Thousands of clinical data points have been collected.

2018 has been a year of growth for BMER. We have seen a 35% increase in enrollment in 2018 when compared to 2017. BMER has also joined forces with a larger research effort at University of Iowa Hospitals & Clinics called PERCH (Patients Enhancing Research Collaborations at Holden). As part of PERCH, BMER participants are invited to sign a unified biorepository consent form. PERCH serves to bring together many active biorepository projects at UI Hospitals & Clinics and collaborating institutions.



The field of breast oncology has changed dramatically over the past several years, with new advances in medical, surgical, and radiation therapies. Holden Comprehensive Cancer Center and researchers at the University of Iowa are proud to be a part of this rapidly transforming field, as we find new ways to diagnose, monitor, and treat breast cancer. BMER has been an invaluable resource for researchers at the University of Iowa and for collaborators at institutions across the country. We are so grateful to our BMER participants. Your commitment helps us further breast cancer research that can be translated into actual interventions to help future patients. Our hope is that BMER will continue to expand and provide clinical data and research biospecimens to University of Iowa scientists that will allow us to improve our practices and maximize quality of life for patients with breast cancer. We thank you for your willingness to participate and hope you are proud to partner with us on this important endeavor.

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Sonia Sugg, MD  
Principal Investigator

Sneha Phadke, DO  
Co-Principal Investigator

[uihc.org/cancer](http://uihc.org/cancer)



## BMER Objectives

1. Collect and store tissue and blood samples to build a repository.
2. Collect clinical information including treatment and disease-related information to match the tumor and blood samples.
3. Collect self-reported quality of life and follow-up data.
4. Provide resources for current and future investigators interested in researching proliferative disorders of the breast.

## BMER Eligibility Criteria

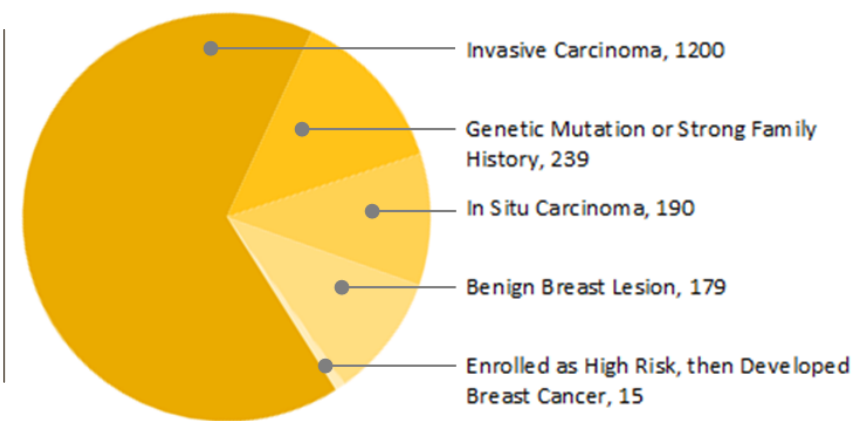
Male or female patients  $\geq 18$  years old with any of the following:

- A primary, recurrent, or metastatic proliferative disorder of the breast diagnosed within one year of enrollment
- 2 first-degree relatives with breast cancer
- 1 first-degree relative with breast cancer who is younger than age 60
- 1 male relative with breast cancer
- Known genetic mutations such as BRCA 1 and BRCA 2

## Enrollment by Year

Year	Enrollment
2010	144
2011	226
2012	243
2013	219
2014	210
2015	197
2016	183
2017	198
2018	203
<b>Total</b>	<b>1,823</b>

## Total Enrollment by Type of Diagnosis



## Participation Across Iowa



Region	Location	Number of Participants
	Out of State	191
1	Northwest	14
2	North Central	36
3	Northeast	123
4	West	10
5	Central	107
6	East Central	783
7	East	195
8	South Central	88
9	Southeast	276

## Featured Investigator: Dr. Songhai Chen

**What brought you to University of Iowa Hospitals & Clinics?** I was attracted to come here because of the cooperative research environment and the small college town atmosphere that is good for families.

**What is special about the University of Iowa Breast Cancer Research**

**Program?** The Breast Cancer Research program here is relatively small, but we work together well and help each other as a team.

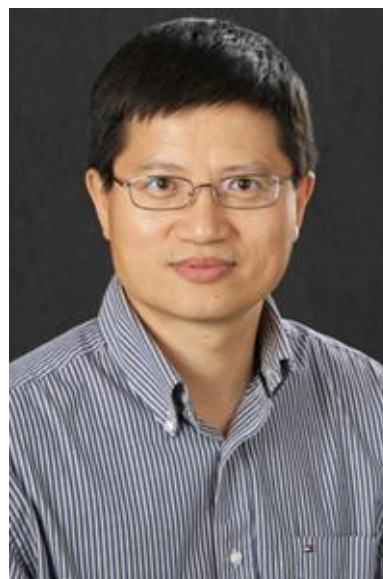
**What led you to decide to conduct breast cancer research?** Despite the progress in diagnosis and treatment, breast cancer remains to be the leading cancer and the second cause of mortality in American women. I have two daughters, and I hope breast cancer will one day become one of the diseases that all women, including my daughters, don't need to worry about. I hope my research can contribute to make this happen.

**What is the focus of your breast cancer research?** My research focuses on the role of cancer stem cells in breast cancer growth and metastasis. We aim to elucidate novel mechanisms that control breast cancer stem cell activities and identify novel targets and approaches (including the use of immune checkpoint inhibitors) to ablate cancer stem cells to block cancer progression and recurrence and to enhance the therapeutic efficacy of current treatments.

**In your opinion, what is the most exciting research discovery related to breast cancer that has been made in the last 5 years?** In my opinion, the most exciting research discovery is the recent findings that immunotherapy (such as immune checkpoint inhibitors) may be effective for treating triple negative breast cancer (TNBC), a deadly cancer type that is highly aggressive and has limited treatment options. Given the success of such treatments in other types of cancer (such as melanoma), this gives the hope for optimal management of TNBC.

**What is your vision for breast cancer research in the next decade?** My vision for breast cancer in the next decade include: the discovery of tests or genetic screens that can better predict the prognosis of cancer and the efficacy of treatments; improvement in the effectiveness of immunotherapy. Breast cancer research should continue to make strides in prevention, early detection, and better treatments.

**Could you share how samples obtained from BMER have been helpful to your research so far? Do you have plans to utilize BMER resources again the future?** I previously obtained samples from BMER primarily for generating preliminary data for grant submission...I definitely would like to use BMER resources again and hope the number of samples will grow more in the sample core.



## Featured Projects (Fiscal Year 2018)

**Development of EV phosphoproteins as biomarkers for breast cancer** Dr. Weizhou Zhang (University of Iowa), Dr. Sonia Sugg (University of Iowa) & Dr. W. Andy Tao (Purdue University)

Extracellular vesicles (EVs) are “packages” that cells release into the bloodstream. Scientists have shown that EVs contain molecules, including phosphoproteins, which may serve as markers of some disease processes, including breast cancer. Dr. Zhang & Dr. Tao analyzed plasma samples from BMER subjects to see if EVs differ between different breast cancer sub-types. Breast cancer subtype is associated with different risk factors, different degrees of cancer progression, and different treatments. They hope their work may eventually lead to the development of a blood test to detect and monitor breast cancer.

**Plasma membrane expression of G-protein coupled estrogen receptor (GPER) and survival in triple negative breast cancer** Dr. Edward Filardo & Dr. Sneha Phadke (University of Iowa)

G-Protein coupled estrogen receptors (GPER for short), are located on the plasma membrane of cells. Research has shown that the presence and activation of GPER is associated with breast tumor size and metastasis. Dr. Filardo & Dr. Phadke are in the process of analyzing breast tumor tissue from BMER subjects with triple negative breast cancer (TNBC). They hope their work will lead to better understanding of the role of GPER and how it may be used to predict response to anti-estrogen therapy or other types of therapy.

## BMER is supported in part by philanthropy!

It's an exciting time at Holden Comprehensive Cancer Center at the University of Iowa. We continue to learn that cancer is far more complex than we ever imagined—that's why, here at Holden, we continue to look for new, safe, and effective treatments for our patients. With the work of our breast cancer team comprised of clinicians, surgeons, nurses, pathologists, and researchers we are able to collaborate in unique ways as we look to understand more about this disease while providing our patients with the most effective treatment options.

Breast cancer is the most prevalent cancer type (1.4 million new cases/year) and the leading cause of cancer-associated deaths among women worldwide (almost 500,000 deaths/year) as well as the second most lethal cancer in the United States. 1 in 8 women will develop breast cancer in their lifetime.

Over the last year, largely, due in part to private support toward the breast cancer efforts at Holden we have been able to:

- Allocate support to students and postdoctoral fellows working on breast cancer projects where national funding is not available
- Continue to make progress in targeting drug development and cancer treatment in obese breast cancer patients
- Train the next generation of breast cancer surgeons and clinicians through hands-on experience with the breast team of physicians at Holden
- Grow the BMER biorepository, increasing its impact and utility for breast researchers

Private support plays a critical role in the work we do at Holden. Thank you for considering how you can make an impact.

To make your gift online today visit: <https://donate.givetoioiowa.org/s/1773/foundation/interior.aspx?sid=1773&gid=2&pgid=509&cid=1288&bledit=1&dids=291.579&sort=1>. Please select the Directed Cancer Gift Fund and note BMER in comments section.

You can also mail your gift to:

The University of Iowa Center for Advancement  
1 W. Park Road  
Iowa City, IA 52244-4550

If contributing by mail, note BMER on check.

## The Molecular Epidemiologic Resource Core

Did you know that BMER is part of a larger team called the Molecular Epidemiologic Resource Core (MERC)?

### Contact Us

**Phone:** 319-356-4502

**Email:** CancerCenter-MER@healthcare.uiowa.edu

### Visit Us Online

**Website:** [uihc.org/molecular-epidemiology-resources-core-merc](http://uihc.org/molecular-epidemiology-resources-core-merc)



**The MERC Team is made up of a director, manager, coordinators, consenters, and lab technicians.** Pictured from left to right: Kasey Lockett, Kristen Coleman, Ashley McCarthy, Celeste Charchalac, Angela Merriss, Melissa Curry, Janice Cook-Granroth, and Tina Knutson.  
Not Pictured: Dr. Carlos Chan and Francesca Nugent