

Breast Cancer **FACTs, MYTHs,** and **CHOICES**

November 2010 Issue 1

WELCOME

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Breast cancer:
Windows of Susceptibility
NIH grant 1U01ES019480

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PINK RIBBON GIRLS

OUR MISSION

TO PREVENT the occurrence
of BCa through RESEARCH
and EDUCATION

TO ENCOURAGE and
SUPPORT BCa survivors,
friends and families.

Welcome to our first issue of Breast Cancer **FACTs, MYTHs,** and **CHOICES** which brings together scientists and breast cancer survivors in a group dedicated to finding cures and preventions for the greatest killer of women, breast cancer (BCa). We hope you will enjoy our newsletter format which is unique, in that it brings together personal stories, scientific breakthroughs, a little humor, relaxing activities, great recipes and "food" for thought.

Our inboxes (email) are always open to your comments and suggestions as we strive to improve our translation of science into usable information, and be responsive to your questions and concerns. Share our URL with friends and family.

The research aspects of this group represent the long-standing efforts of Dr. Shuk-mei Ho and colleagues to unravel the issues surrounding environment - gene interactions in cancer and discovering ways to prevent cancer.

Pink Ribbon Girls was founded when Tracie Metzger and Dawn Harvey realized there was no specific group for young women dealing with breast cancer. Through this non-profit organization, young women are offered education and awareness for early detection, support and an outlet to express fears.

Shuk-mei Ho, PhD

PI, Breast cancer: Windows of

Susceptibility. Research Support: NIH grant 1U01ES019480

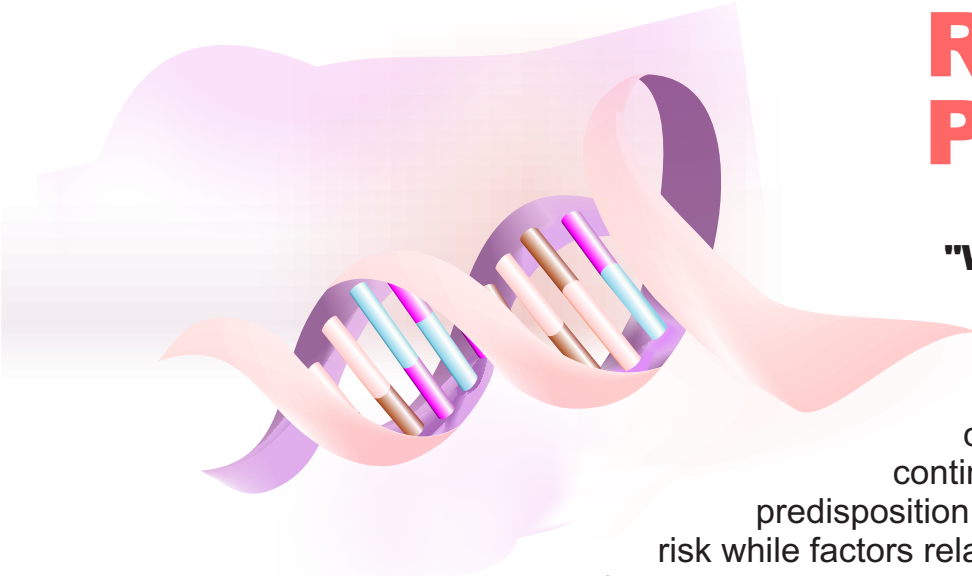
Tracie Metzger Co-founder, CEO

PINK RIBBON GIRLS

RESEARCH PARTNERS

"Windows of Susceptibility"

an overview...



Breast cancer is the leading cause of death in women; rates continue to rise globally. Genetic predisposition accounts for less than 15% of risk while factors related to the environment and lifestyle choices account for the rest. A diet high in fat is likely a major risk factor for breast cancer (BCa) in the U.S. Research shows that the type of fat ingested and a critical window of exposure are key factors.

Environmental estrogens, like bisphenol A (BPA), a key component in making hard plastic, are also suspect. Rats exposed to BPA before or after birth are more susceptible to a cancer-inducing agent (dimethylbenzanthracene (DMBA)) than unexposed rats. It is not known if BPA and high-fat diets together, will have synergy. Perhaps more importantly, the research probes the role of epigenetics (inheritable genetic environment affecting gene expression) in developmental aspects of BCa. Rats exposed prenatally to high-fat diets (fat = 39% of kcal) exhibited greater susceptibility to DMBA-induced BCa than rats eating the reference diet (fat = 16% of kcal). The high-fat diets also induced increases in mammary cell division and a unique cell-division gene signature. Preliminary data then, support the event of epigenetic reprogramming of gene expression in adult mammary glands consequent to prenatal exposure to high-fat diets. It is proposed that there is a critical "window of susceptibility" of the embryo for high fat diet-BPA interaction, which, reprograms mammary epigenetics, resulting in aberrant gene expression and increased BCa risk in adulthood.

Two specific aims will test this hypothesis, and a third will translate findings into public health action through community partnerships and outreach:

Aim 1: To characterize the dose-response of dietary BPA on the developmental effects of high-fat diets on BCa risk later in life;

Aim 2: To determine (a) if the *type* of fat is important for synergy with BPA in elevating BCa risk in adults, and (b) if the pattern of epigenetic changes (DNA methylation) and abnormal mammary epithelial cell proliferative gene signature, reflects the combined exposure; and

Aim 3: To translate research findings into publicly available multi-media products, in partnership with "**PinkRibbonGirls**", educating, increasing awareness, and encouraging lifestyle choices that reduce BCa risk.

COMMUNITY PARTNERS

A forum for information and support

This first newsletter will use the types of media outreach that the RESEARCH and COMMUNITY PARTNERS will use for the ***Breast Cancer, Windows of Susceptibility*** project. Both topics and participants will be introduced one at a time.

We proposed to use powerpoint and video presentations as educational resources with topics arranged in groups of 4 presentation slides each: Each group will have the same format: 1) **fact**, 2) **myth** (associated with that fact) 3) **question** from the audience, and 4) **choice**, (a 'best practice suggestion' giving the individual the information to opt-in to a healthier lifestyle. The "choice" is a thoughtful blend of the facts and needs derived from the COMMUNITY and RESEARCH PARTNERS with the suggestions from concerned supporters of PINK RIBBON GIRLS aimed at reducing environmental risks for BCa. An example is shown in Figure 1.

The rationale for this approach is based on the following: TELL ME, I forget, SHOW ME, I remember INVOLVE ME, I understand. The involvement of all parties --from questions asked in presentations, and blogging, and research efforts, and reinforced through the suggestions for taking action.

The topic for the demonstration set (Figure 1) was derived from an "interested" partner, and the question was worded thus:

If a plastic bowl is labeled "microwave safe," does this mean that it doesn't have BPA or phthalates, or other harmful chemicals and can be used safely to heat or cook food?

"Never reheat in Styrofoam, margarine tubs, whipped topping bowls or other plastic containers for reasons of physical danger (overheating melting etc. Plastic wraps can contain toxic chemicals which do leach into the food stored within especially on microwaving, and plastic wraps should not be in contact with food during microwaving."

Not unexpectedly, the issues are confusing and poorly researched, bias occurs on both sides of the issue -- safe--toxic so the best practice would include NOT microwaving in plastic. Use lead-free glass (like pyrex) and ceramic dishes (no clay and unglazed containers). Same with storing water in the freezer -- use glass when you can.

Sample series

FACT:

All plastics contain agents which harden and/or soften them. Many plasticizers pose health risks.

MYTH:

If it is marked "**microwave safe**" it is safe for microwaving food.

QUESTION

...is there any plastic I can use for cooking or storing food or water????

CHOICES

Not all plastics can be used safely in microwave or freezer....
Until more is known, use glass.

Figure 1. Format for power point presentations to audiences from the platform delivered by members both of the COMMUNITY PARTNERS and the RESEARCH PARTNERS.

The Question from the audience will be animated to simulate the typing in of a text message, and an animated ribbon character will point to important text and elements of the slides.

The topics of discussion at group meetings include, dating, caring for young children while undergoing treatment and fitness and nutrition. Pink Ribbon Girls has a national, searchable database, providing a way for them to connect with other young women with similar demographics and life circumstances.

Sample series

FACT:

You can influence
the way your DNA is
"read"

MYTH:

There is **NOTHING**
I can do to
CHANGE my DNA

QUESTION

...can I
personally affect
the expression of
some cancer
genes????

CHOICES

YES! through
epigenetics -- the
expression of some
genes is changed by
lowering dietary fats.

Figure 2. Providing scientific data, dispelling the myth of being a "victim" of my DNA, showing a question from the audience, and providing information about a healthful choice.

Sample series

FACT:

Epigenetics = the study of altering gene expression without altering DNA

MYTH:

The DNA we are born with cannot be influenced

QUESTION

...what can I do to affect my gene expression ??

CHOICES

Regulate your diet:
Reduce the percent of your total diet comprising fats to about 61g*

female 30, 5'6" light exercise

Figure 3. Information about epigenetics, dispelling the myth that the DNA we are born with cannot be influenced. Question from the audience, and suggestion for choosing to lower dietary intake of fat.

COMMUNITY PARTNERS

NOVEMBER'S RECIPE

Pumpkin Bread Recipe

Ingredients:

1-1/2 cups of unbleached, all-purpose flour

1-1/4 tsp. baking soda

1 tsp. salt

1 tsp. cinnamon

1/2 tsp. nutmeg

1/2 tsp. cloves

1 cup canned pumpkin puree

1 cup firmly-packed brown sugar

1/2 cup low-fat or nonfat buttermilk

1 large egg

1 Tbsp. canola oil

1/4 cup chocolate chips

Preheat oven to 350 degrees. Spray a loaf pan with nonstick cooking spray. Mix flour, baking soda, salt, cinnamon, nutmeg and cloves together in a small bowl.

In a large bowl, beat pumpkin puree, brown sugar, buttermilk, egg and oil together. Add dry ingredients to wet, stirring just until moistened

Pour into the prepared loaf pan. Bake for 1 hour.

**MAKE and
SHARE THIS
WITH A
FRIEND**

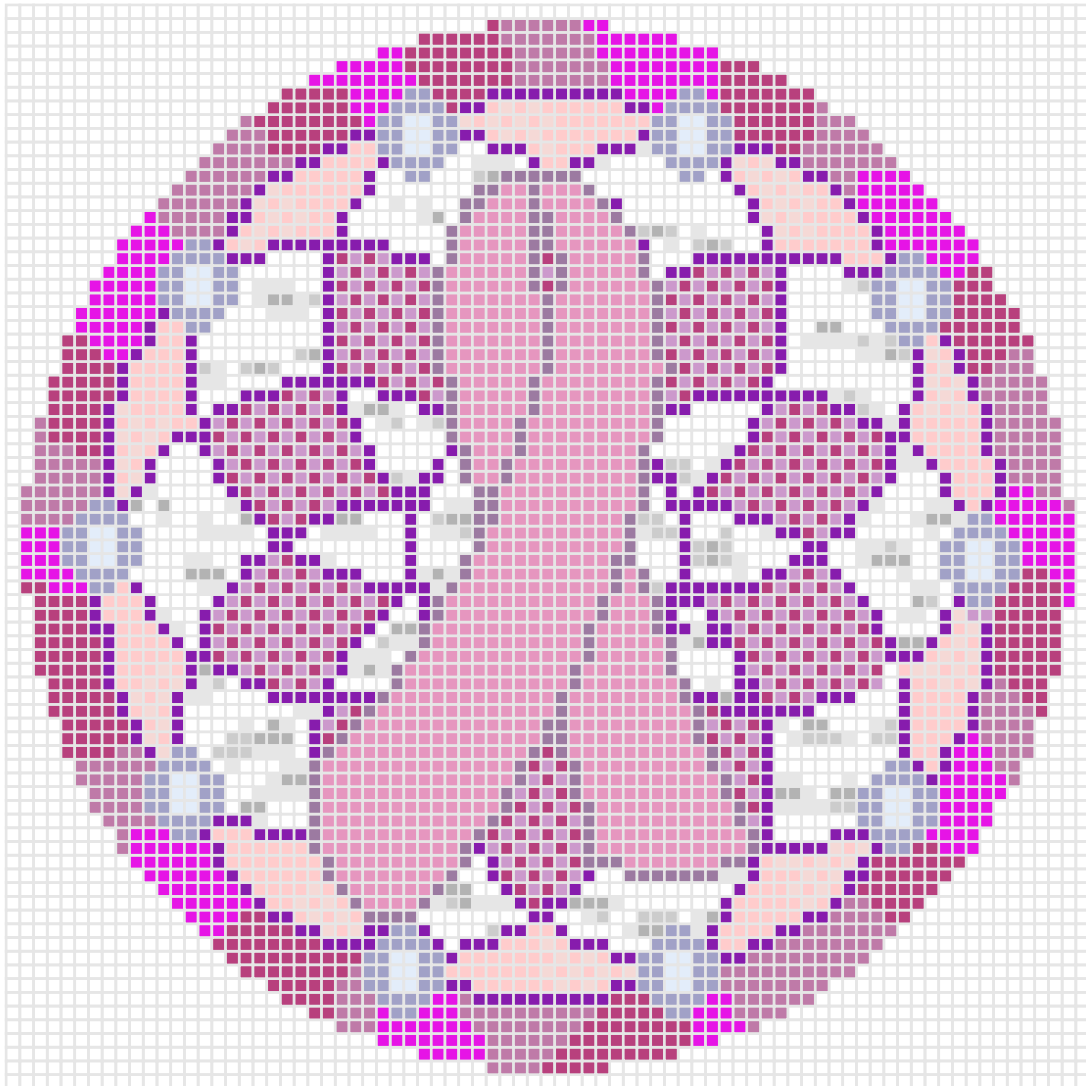
FOLLOWUP

**Don't limit YOUR dreams
or the dreams of others.**

COMMUNITY PARTNERS

NOVEMBER's craft pattern

Breast cancer ribbon and star
counted cross stitch
for 14 count airda cloth
5/5" x 5.5", 15 colors



Actual size



DMC color numbers are all based on my computer monitor and monitors are different so choose your close matches or your imagination and have fun with the color.



All filled squares are cross stitches
Lines are made with back stitches.

Anchor -DMC conversion charts are available online.



stitch count color DMC suggestion number

582  blank or white



651  915 



328  316 



300  3803 



273  554 


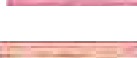
834  3721 


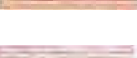
240  155 


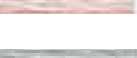
60  341 



192  210 



755  604 

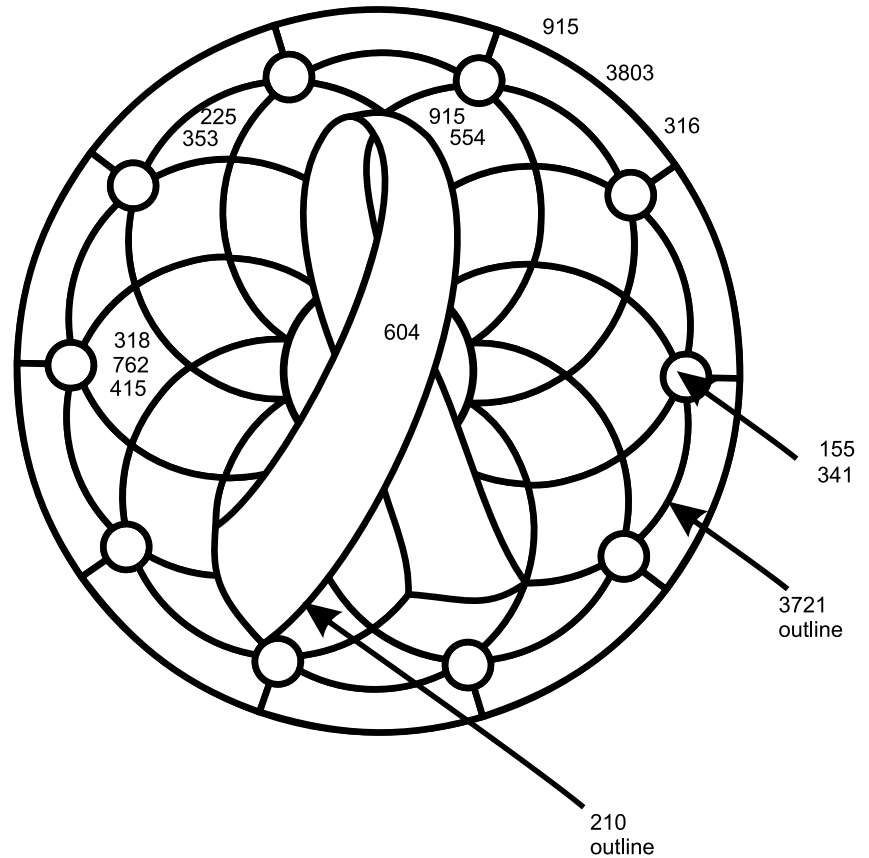
323  353 

91  225 

63  318 

142  762 

57  415 



enlarged

