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September 15th, 2023

Dear Regina,

Welcome to BioMarketing Insight's monthly newsletter.

In this month's newsletter I will cover "Can a New Ultrasound Patch Spot Tiny Breast Abnormalities Early?". You can find my article under the Table of Content and click on the link.

If you missed the last months newsletter on "The Battle of the Oral Obesity Drug and Who Will be First" click <u>here</u> to read the article.

If you missed the photos of our 2nd Annual AAPI Heritage Festival held on Saturday, May 20th, 2023, click on this <u>link</u> to see highlights of the festival. Our Festival made the front page of the local Daily Times Chronicle.

9/15/23, 9:03 PM		Can a New Ultrasound Patch Spot Tiny Breast Abnormalities Early?			
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		m the Berklee School of Music in their song "What the World ending with Celine Dion and Josh Groban with "The Prayer".			
	Please read on for other current news in the Table of Content below. The next newsletter will be October 15, 2023.				
	media icons below,	to share this newsletter with your colleagues by using the social or by simply forwarding this newsletter or use the link below. colleagues want to join my mailing list, click on "join my email list			
	Please email <u>me,</u> F	Regina Au, if you have any questions, comments, or suggestions			
	Sincerely, Regina Au CEO, New Product <u>BioMarketing Insig</u>	Planning/Strategic Planning <u>nt</u>			

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Developing a Product? Commercializing a Product?

If you are developing a product and have not conducted the business due diligence to determine commercial viability or success, contact <u>me</u> for an appointment. For successful commercial adoption of your product or looking to grow your business, contact <u>me</u> for an appointment.

For more information on our services, click on the links below:

<u>Product Development</u> <u>Market Development</u> <u>Marketing Strategies</u> <u>Scenario Planning</u> - for more information, email <u>me</u>.

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Recap of the AAPI Heritage Festival - Saturday, May 20th, 2023

The Asian American Pacific Islander (AAPI) Heritage Festival was a success in celebrating AAPI Heritage Month with both the Asian and nonAsian communities. This celebration was to build awareness and educate our community on the various cultures and contributions the different Asian and Pacific Islanders ethnic groups have brought to enrich our American History.

Our Festival made the front page of the Daily Times Chronicle. See the article and pictures of our speakers, musicians and performers. In addition, we had our "Contributions AAPI Have Made to American History" Exhibit on display in the lobby and continued on into the program room. More pictures will be revealed next month.

Guest Speakers: Massachusetts State Representative Vanna Howard Mayor Scott Galvin of Woburn Special Guest Musician: Kevin So Guest Musician: Entian Lee, Chinese Zither Guest Performers: Swasti Bhargava & Aanvi Bhargava, Ekam Boston Anvee Gudipati, Sreshta Mahavadi, Ekam Boston



WOBURN - The City Council wants to consult with the city engineer's office and other department head managers before allowing a Lowell Street landowner to spread out fill in a low-lying depression.

During the elected officials' latest gathering in City

of fill to the back yard of a two-family property at 2 Lowell St., which sits in the city's Central Square area by Main Street.

The council, looking for additional details about the total volume of soil and rocks being brought in and



THE ASIAN AMERICAN PACIFIC ISLANDERS HERITAGE FESTIVAL was held at the Woburn Public Library with many posters describing the contributions made to American history. Volunteers and participants in the AAPI Heritage Festival included (l-r) Katherine Jiao, Vicky Wu, AAPIEC Inc. President remain in this Regina Au, and Ekam USA-Boston Chapter Director Nagasree Chakka. Some of the entertainment were Rheaume noted i dancers and musicians inside the library along with food vendors set up outside in the library's parking (KAPAndrewsPhotos)



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General Guidelines to Launch and Build a Clinical Trial Using Microbiome Products in an Era of Personalized Medicine.

I am pleased to announce that I was a speaker at the Westchester Biotech Project for Consortium on Translational Research in the Microbiome on November 11th, 2021. The Topic: General Guidelines to launch and build a clinical trial using microbiome products in an era of personalized medicine. My presentation was on " How to Launch and Market a Successful Microbiome Product: Five Major Considerations".

For more information on Westchester Biotech Project and future webinars, click here.

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Inspirations

Enjoy the song "What the World Needs Now" virtually with the students from the Berklee School of Music.

The Pandemic is NOT Over, But We Will Get Through It Together By Taking COVID Precautions: Masking, Regular Testing, Updated Vaccinations and Practice Good Hygiene Every Day.



Let's End with Celine Dion & Josh Groban Singing "The Prayer"

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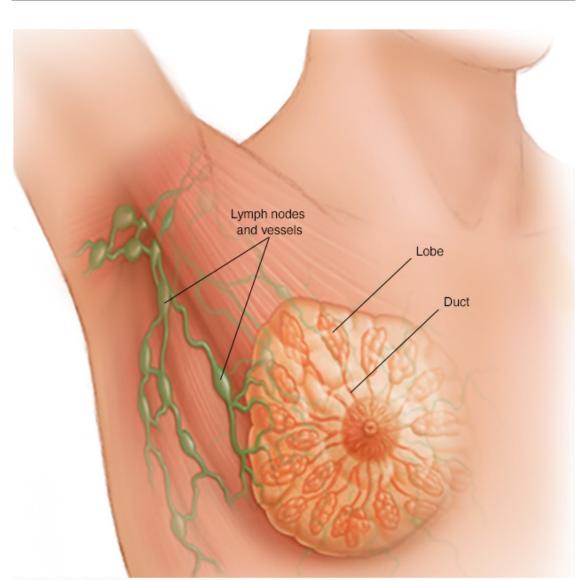
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One Biotech Executive's View on the COVID-19 Vaccine

I am pleased to announce that my article on the COVID-19 Vaccine was published in Lioness Magazine. To read my article click on the link <u>here</u>.

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Breast cancer is the <u>second most common</u> cancer among women in the United States (some types of skin cancer are the most common). Black women die from breast cancer at a higher rate than White women.

<u>Each year</u> in the United States, about 240,000 cases of breast cancer are diagnosed in women and about 2,100 in men. About 42,000 women and 500 men in the U.S. die each year from breast cancer. Black women have a higher rate of death from breast cancer than all other women.

<u>Breast cancer</u> is a disease in which cells in the breast grow out of control. There are different types of breast cancer determined by the specific cells in the breast that become cancer.

1. Ductal or lobular carcinoma -

Most breast cancers are carcinomas, which are tumors that start in the epithelial cells that line organs and tissues throughout the body. When carcinomas form in the breast, they are usually a more specific type called adenocarcinoma, which starts in cells in the ducts (the milk ducts) or the lobules (glands in the breast that make milk).

2. In situ vs. invasive breast cancers -

The type of breast cancer can also refer to whether the cancer has spread or not. In situ breast cancer (ductal carcinoma in situ or DCIS) is a pre-cancer that starts in a milk duct and has not grown into the rest of the breast tissue. The term invasive (or infiltrating) breast cancer is used to describe any type of breast cancer that has spread (invaded) into the surrounding breast tissue.

<u>3. Angiosarcoma</u> is a rare type of cancer that forms in the lining of the blood vessels and lymph vessels. The lymph vessels are part of the immune system. The lymph

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them.

This type of cancer can occur anywhere on the body. But it occurs most often on the skin of the head and neck. It rarely forms on the skin of other parts of the body, such as the breast. Or it may form in deeper tissue, such as the liver and the heart. Angiosarcoma can occur in areas that were treated with radiation therapy in the past.

<u>4. Special types of invasive breast cancers</u> - Some invasive breast cancers have special features or develop in different ways that influence their treatment and outlook. These cancers are less common but can be more serious than other types of breast cancer.

Triple-negative breast cancer (TNBC) accounts for about 10-15% of all breast cancers. The term triple-negative breast cancer refers to the fact that the cancer cells don't have estrogen or progesterone receptors (ER or PR) and also don't produce or make much of the protein called <u>HER2</u>. (The cells test "negative" on all 3 tests.) These cancers tend to be more common in women younger than age 40, who are Black, or who have a *BRCA1* mutation. TNBC differs from other types of invasive breast cancer in that it tends to grow and spread faster, has fewer treatment options, and tends to have a worse prognosis (outlook).

breast cancers. Although this is a type of invasive ductal carcinoma, its symptoms, outlook, and treatment are different. IBC causes symptoms of breast inflammation such as swelling and redness, because the cancer cells are blocking the lymph vessels in the skin causing the breast to look "inflamed."

- 1. Inflammatory breast cancer (IBC) differs from other types of breast cancer in many ways:
- 2. IBC doesn't look like a typical breast cancer. It often does not cause a breast lump, and it might not show up on a mammogram. This makes it harder to diagnose.
- 3. IBC tends to occur in younger women (younger than 40 years of age).
- 4. Black women appear to develop IBC more often than White women.
- 5. IBC is more common among women who are overweight or obese.
- 6. IBC tends to be more aggressive—it grows and spreads much more

quickly-than more common types of breast cancer.

7. IBC is always at least at a locally advanced stage when it's first diagnosed because the breast cancer cells have grown into the skin.

(This means it is at least stage III.)

8. In about 1 of 3 cases, IBC has already spread (metastasized) to distant parts of the body when it is diagnosed. This makes it harder to treat successfully. with other common types of breast cancer.

5. Paget Disease of the Breast

a. Paget disease of the breast is a rare type of breast cancer involving the skin of the nipple and the areola (the dark circle around the nipple). Paget disease usually affects only one breast. In 80-90% of cases, it's usually found along with either <u>ductal carcinoma in situ (DCIS)</u> or <u>infiltrating ductal carcinoma (invasive</u> breast cancer).

6. Phyllodes Tumors of the Breast

- Phyllodes tumors (or phylloides tumors) are rare breast tumors that start in the connective (stromal) tissue of the breast, not the ducts or glands (which is where most breast cancers start). Most phyllodes tumors are benign and only a small number are malignant (cancer).
- Phyllodes tumors are most common in women in their 40s, but women of any age can have them. Women with <u>Li-Fraumeni syndrome</u> (a rare, inherited genetic condition) have an increased risk for phyllodes tumors.
- Phyllodes tumors are often divided into 3 groups, based on how they look under a microscope:
 - Benign (non-cancerous) tumors account for more than half of all phyllodes tumors. These tumors are the least likely to grow quickly or to spread.

(cancerous) tumors.

2. Malignant (cancerous) tumors account for about 1 in 4 phyllodes

tumors. These tend to grow the fastest and are the most likely to spread

or to come back after treatment.

Physicians and scientists know that normal breast cells can become cancer because of changes or mutations in **genes**. But only about 1 in 10 breast cancers (10%) are linked with known abnormal genes that are passed on from parents (**inherited**). Many genes have not yet been discovered, so women with a family history of breast cancer might have inherited an abnormal gene that doesn't show on a <u>genetic test</u>. Most breast cancers (about 90%) develop from **acquired** (not inherited) gene changes that have not yet been identified.

Diagnosis

Diagnosing the various types of known breast cancers can be very challenging based on both symptoms and imaging which can be either ultrasound or mammogram or both. One of the challenges of diagnosing breast cancer early is obtain high quality images at a microscopic level when the cancer first start to grow out of control.

To complicate matters, it is very difficult to get good images or see cancer cells when a women has dense breast that hide the cells growing out of control or abnormality.



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Wearable Ultrasound Patch

Source: Science Advances

<u>Canan Dagdeviren</u>, senior researcher and an associate professor at the Massachusetts Institute of Technology (MIT) has developed a new <u>wearable Ultrasound Patch</u> that spots tiny breast abnormalities. It is currently in preliminary trials.

The new technology could allow women at high risk for breast cancer monitor themselves for signs of early disease at home instead of traveling to medical imaging centers that can be far away and results are very operator dependent. It could also be an option for women in poorer countries, where medical imaging centers can be hard to find.

With traditional breast ultrasound, a health care provider applies a gel to a handheld wand -- called a transducer -- then moves it over the skin on and around the breast. Therefore, the quality of one ultrasound to another varies, in part, based on the operator's experience and expertise.

In theory, a wearable ultrasound device could be both more convenient and more reliable.

But the breast presents a particular design challenge: curves. Other wearable ultrasound devices under development have typically been small -- even the size of a postage stamp - and designed to be used once, for a matter of days.

Dagdeviren is interested in whether a wearable ultrasound, used repeatedly over the long term, can help catch breast cancer in its earliest stages -- particularly in women at high

"So we thought, why don't we create a malleable, flexible ultrasound device that you can wear over your bra?" <u>Dagdeviren</u> said.

Dagdeviren and her team developed a honeycomb-like patch, with 15 hexagonal sections, that makes it flexible enough to conform to the breast, over a bra, and also gives it structure: Ultrasound images are captured by a tiny tracker that moves around the patch, via a set pathway along the hexagons (see photo above). The tracker can rotate 360 degrees, providing images at multiple angles.

The researchers used the patch on a 71-year-old woman who had a history of cysts in her breast tissue as a test. They found that the device could detect cysts as small as 3 millimeters -- hinting at its potential to pick up early tumors.

"This is a very impressive study," said Sheng Xu, a researcher at the University of California, San Diego, whose lab has been developing wearable ultrasound for a number of years.

"The tracker in the bra could help standardize the ultrasound imaging procedure and minimize the operator-dependency, which plagues conventional ultrasound," Xu said.

Dagdeviren and her team will need to study at least 1,000 women to win approval for the patch from the U.S. Food and Drug Administration.

The U.S. <u>National Institutes of Health</u>, who is funding some of that research, says that wearable ultrasound has the potential to "revolutionize health care."

It is hoped that one day that this portable technology can help diagnose and monitor a range of diseases and injuries -- in a way that's more accessible and cheaper than using traditional scanners housed at medical facilities. This approach is believed to hold promise for imaging the heart, arteries, lungs or other organs and tissue as people go about their day.

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Closing Thoughts

Although there has been a lot of research devoted to breast cancer for years, scientists have not scratched the surface in truly understanding breast cancer since only 10% of breast cancer is inherited. Many genes have not yet been discovered, so women with a family history of breast cancer might have inherited an abnormal gene that doesn't show on a genetic test. Most breast cancers (about 90%) develop from **acquired** (not inherited) gene changes that have not yet been identified.

It's not an easy task as the human body is very complex. But now more than ever, more research and money still needs to be devoted to breast cancer research.

Even with the advances scientists have made with treatment for such genes as HER2, BRCA1, BRCA2 and other known genetic mutations, there are still about 42,000 women and 500 men in the U.S. who die each year from breast cancer. The old stereotype that breast cancer is a women's disease is no longer true. Although majority of the people affected are women, men are also affected and I have a feeling that this number will grow as physicians understand breast cancer in men and can diagnose men with breast cancer more accurately.

So support breast cancer research. There are many organizations that are doing cancer research and others specifically on breast cancer. The more scientists can understand breast cancer, the more lives they can save. Here are just a few organizations, choose your favorite and donate.

American Cancer Society Breast Cancer Research Foundation National Breast Cancer Foundation Susan G. Komen

Here are the five best hospitals for cancer treatment in the world.

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4 1 -

- 4. Dana-Farper Cancer Institute, United States
- 3. Institut Gustave Roussy, France
- 2. Memorial Sloan Kettering Cancer Center, United States
- 1. MD Anderson Cancer Center, United States
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