

FITNESS & HEALTH

## Bioscience Institute: Breast Cancer Awareness & Early Detection

Did you know that globally, over four million women live with breast cancer and are in partial or complete remission? As per Harvard Health Publishing, the encouraging news is that most women diagnosed early are likely to become long-term survivors. This is exactly why it is incredibly important that we continue to raise awareness not just for Breast Cancer, not just in October - but all year around.

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Giuseppe Mucci, CEO of Bioscience Institute

tor skin cancers) and is the second leading cause of cancer death in women. While the mortality rate has dropped globally with an annual reduction of 2–4% per year, WHO has launched the Global Breast Cancer Initiative (GBCI), with the aim 'to reduce global breast cancer mortality by 2.5% per year, thereby averting 2.5 million breast cancer deaths globally between 2020 and 2040.' Enter October - the month of awareness on the importance of breast self-examination and screenings; this is also a time to look at the larger picture, in that cancer cells can multiply quickly to nearby breast tissue, often spreading to nearby lymph nodes or other organs.

With the advances in science and technology, we live in times where education and awareness can and should help us attain a better quality of life, regardless of our inherited health issues, often passed down through the family history by our genetic models. "With cancer early detection, we can manage the disease," explains Giuseppe Mucci, CEO of Bioscience Institute.

The continuous rise in breast cancer diagnoses points to the need for committing more effort to the interception of *cancer driver factors* before its development, alongside trying to detect it at a stage that is as early as possible. If anything, current prevention strategies based on mammography screening for early detection can prevent cancer death, but not cancer development. L'Officiel Arabia speaks to Giuseppe Mucci to know more about discovering the process of cancer prevention.



**L'O A:** *Please elaborate on the new methods that are being developed for the prevention of cancer.*

**Giuseppe Mucci:** Though the number of deaths caused by cancer are reduced yearly, the number of cancer patients continues to increase. This is because cancer prevention occurs through early diagnosis that prevents 'death' but not the disease. To reduce cancer incidence, it is necessary to identify and treat the conditions that promote the cancers before the onset. The pathophysiological

intestinal bacterial flora (microbiome).

Bioscience Institute has developed 'Helixafe', an innovative program for cancer driver interception, which enables real cancer prevention by analyzing actionable biomarkers of the cancer prodromal stage – that is, the phase lasting years to decades during which healthy cells collect alterations that predispose to cancer development.

However, we can not overlook the fact that a cancer diagnosis translates to the need for cancer treatment. Even if at the earliest stage as possible, cancer diagnosis never is a good news.

***L'O A: What happens after a diagnosis?***

**Giuseppe Mucci:** Breast cancer is staged based on its characteristics, such as its dimensions and whether it has hormone receptors. Stage 0 corresponds to non-invasive or pre-invasive breast cancer; no abnormal cells have broken out the part of the breast from which they originate. Stages I, II, and III correspond to invasive breast cancer, and stage IV is an invasive breast cancer that has spread to other organs beyond the breast and nearby lymph nodes.

Even if not yet invasive, stage 0 breast cancer is often treated, because if left alone, some cells can transform into invasive breast cancer that is able to spread. The options are not milder than the ones for more advanced diseases, including mastectomy. That is why it is mandatory to shift the focus from early detection (that is, secondary prevention) to primary prevention or, even better, from cancer interception to cancer driver interception.



***L'O A: What is cancer driver interception?***

**Giuseppe Mucci:** Cancer driver interception refers to the detection of the factors that promote cancer development or that contribute to its genesis by creating the ideal microenvironment for its development. Notably, genomic instability is the main cancer driver. Other cancer drivers, such as low-grade chronic inflammation, immune imbalance, and gut dysbiosis, can promote genomic instability or insist on it. Fortunately, genomic instability takes years to decades to promote healthy cells transformation into cancer cells. During these years we can intercept it and the other cancer drivers, and take action against them. This possibility shifts the concept of primary prevention from a passive approach (avoiding risk factors, such as smoke) to a more active approach based on the intake of chemopreventive agents (such as aspirin in the case of colorectal cancer), just as in the case of CVD prevention, where the interception of CVD drivers (such as high blood cholesterol), their monitoring, and their management via lifestyle and drugs (such as statins) is an approach that has proved effective and is widely accepted.

What's more, cancer driver interception could foster a further decline in cancer mortality. Treatment of biomarkers of cardiovascular diseases – such as high blood cholesterol and high

actionable cancer driver factors will boost the decline in cancer mortality in a similar way. In fact, we expect to obtain a reduction in cancer incidence by counteracting cancer driver factors, and this could translate into a further reduction in cancer mortality.



**LOA: What is the process of taking the cancer driver interception?**

**Giuseppe Mucci:** We take a blood sample, from which we extract the circulating DNA fragments and we sequence them. It takes us about 3 weeks to have the full report ready, and based on the result, the next course of action is decided – when to do another test etc.

**LOA: Do you recommend people with family history of cancer in their genes to do the test?**

**Giuseppe Mucci:** While having a hereditary predisposition increases your chances, there are so many other causes for cancer in the body. And prevention is helpful to anyone, especially recommended after the age of 30. With these tests it is possible to find out what is developing in the DNA and not just the simple hereditary predisposition that is not modifiable.

**LOA: What is the cost of the test?**

**Giuseppe Mucci:** Depending on the type of test, the cost will vary – with the price starting from AED 2,000.

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<https://bioinst.com/en/information-request/>

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