

# Global Breast Cancer Vaccine Clinical Trial Insight

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## Abstracts

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### “Global Breast Cancer Vaccine Clinical Trial Insight” Report Highlight:

Global Breast Cancer Vaccine Market Overview

Global Breast Cancer Vaccine Clinical Pipeline by Company, Phase & Country

Mechanism of Breast Cancer Vaccine & Personalized Cancer Vaccines

Detailed Clinical Insight on Breast Cancer Vaccine Pipeline: 35 Vaccines

Majority in PHASE-I Clinical Trial: 12 Vaccines

Highest Clinical Phase is PHASE-III: 2 Vaccines (NeuVax & OBI-822)

Cancer vaccines have emerged viable option for treating multiple cancers which in the present day scenario do not have effective treatments. Therapeutic cancer vaccines and Prophylactic cancer vaccines are the two broad segments into which the cancer vaccines market is categorized. Therapeutic or Treatment vaccines are targeted at treating an existing cancer by strengthening the body's natural defenses against the cancer while the Prophylactic or Preventive vaccines are used to prevent cancer from developing in healthy people. With the approval of the prostate cancer vaccine, Provenge by Dendreon, the field of cancer vaccines has received an unprecedented boost. Consequently, many companies are expected to enter this highly profitable emerging field of preventing, treating, and potentially curing the cancer.

In last few years, the peptide cancer vaccines have been demonstrating potential in clinical trials for the treatment of breast cancer. The high versatility and easy modification capabilities have made them widely acceptable among oncologists. They are sometimes developed to target over expressed receptors specific to the breast cancer cells. These vaccines stimulate a cancer patients' immune system to identify and eliminate breast cancer cells. Clinical trials have also shown the efficacy of peptide vaccines in shrinking breast cancer. This has encouraged the oncologists to develop better breast cancer vaccine for patients.

The development and deciphering of underlying principle of breast cancer vaccine will improve significantly driven by technological advancement occurred in recent years. Innovative products developed in this way will decrease the development time and will also help in cost arbitrage. Without cost effectiveness it would be difficult for pharmaceutical companies to compete and occupy substantial share in breast cancer market. However, it is expected that the cost of these vaccines would be high at the time of introduction which will subsequently decrease due to availability of other vaccines in same category.

It is most likely that the first breast cancer vaccines would be introduced in market in the next 3-5 years period. Clinical trials would be able to come with thoroughly checked version of products under investigation which would be able to provide higher levels of medical care to breast cancer patients. Most of the innovative products are at the final stages of clinical trials which are supposed to clear the targeted end points.

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## About

Breast cancer is one of the most lethal types of cancer responsible for highest number of mortality rate among women across the world. Breast cancer incidences are increasing at alarming rates due to severe changes in life style and dietary habits. This has created a huge demand for the breast cancer therapeutics and products to provide effective medical care. In this regard, there has been an increased investment in research and development to innovate effective breast cancer therapeutics.

Breakthrough technological advances have led to development of breast cancer vaccines which are expected to become a major market segment in future. The vaccines market generates billions of dollars and the addition of these cancer vaccines will further increase the market size. Breast cancer vaccine is expected to generate greater revenues owing to the largest number of cancer patients and limited competitors in this segment. Despite worthy efforts made by pharmaceuticals companies, they have not been able to introduce breast cancer vaccine in market.

Globally, the US and EU are expected to provide niche to breast cancer vaccines market by allowing early commercialization of these products.

The breast cancer vaccine would be given to women who are in the early stages and have been operated to prevent the metastasis. The administration of this vaccine after surgery or in combination with other therapeutics will help the immune system to check cancer relapse. The breast cancer vaccine is aimed to help millions of patients across the world that are currently opting for conventional treatments like surgery, chemotherapy and radiotherapy with limited benefits. Pharmaceutical companies would be able to generate higher revenues by promoting it as secondary treatment option among large number of breast cancer patients.

The present breast cancer vaccine pipeline is strong with many products at various stages of clinical trials. Owing to high specificity, safety and efficacy it is believed that they will be widely accepted among oncologists and patients. Their market penetration will increase as no currently available therapeutics provides such benefits to breast cancer patients. These vaccines have to travel a long way before successful market introduction which is expected to take place within next 3-5 years. Pharmaceutical industry has already introduced few cancer vaccines both in prophylactic and therapeutic segments across the world. Breast cancer vaccines under investigation belong to therapeutic category, which will provide defense by boosting

weakened immune system.

Pharmaceutical companies are investing on wide array of innovative breast cancer vaccines, which are presently under clinical trials. The mechanism of these vaccines may differ from one another but safety and efficacy would be the major determinants of success in market. Oncologists do not know long-term effect of these vaccines on longevity, morbidity and mortality. The current five-year survival rate of breast cancer patients is very small due to which nature of side effects has become one of the major issues among oncologists. The deeper understanding of vaccine development will help in future commercial success.

Until date, breast cancer vaccines have not entered in market for the treatment of patients. Present scenario shows that the cancer vaccines for skin and prostate cancer dominant entity in cancer vaccine segment. Their marketing has helped pharmaceutical companies to gain more profits as they provide effective medical care to patients. Competition is expected to increase within these sections as other pharmaceutical companies are also gearing to introduce their product in market. The prices of breast cancer vaccines are expected to decrease due to availability of products from large number of pharmaceutical companies and resulting competition to occupy large market share and technological developments.

Pharmaceutical companies do clearly not know the pricing and reimbursing policies of many regulatory authorities for breast cancer vaccine. In highly regulated markets it is expected that they will be able make place in reimbursement list. This will increase the market penetration of breast cancer vaccines by increasing number of patients opting in their therapeutic regime. The future of breast cancer vaccines seems to be optimistic as many regulatory authorities like the FDA and the EMA are known to favor patients who are suffering from chronic diseases. Pharmaceutical companies would also be able to market their products easily as speedy decision making saves the winding time.

Clinical trials for a revolutionary breast cancer vaccine are due to get underway in 2015 by Australian pharmaceutical company called Ascend. Their breast cancer showed relapse only in 6% of vaccinated patients who had undergone surgery in past decade. This success rate means that this company would be able capture large market share after completing remaining clinical trials. Side-by-side they will also launch the skin cancer clinical in February 2015. These positive developments will help the large number of patients to spend high quality of life.

Galena Biopharmaceutical Company is investigating innovative NeuVax breast cancer

vaccine in clinical trials. This is considered to be one of the most developed breast cancer vaccines aimed to prevent the relapse of HER2 breast cancer. It works by stimulating the immune system to search and destroy cancerous cells expressing the target protein in patients. This vaccine is also under investigation for other cancer indications, which will take few years before marketing approval. The competition of clinical trials will take place in 2017 before successful commercialization in global market.

Immunovative Therapeutics is engaged in the development of AlloStim for treating breast cancer. This vaccine activates the body's T-cells to search and destroy the cancerous cells. The clinical trials for this vaccine were started in January 2014 and it will take July 2016 for completion. Encouraging results on shrinking the tumor size have been produced in the early studies of this product. Products based on this method have shown results at laboratory levels which means that actual trials on human test subjects will take some time.

Many different methods have been devised for the development of cancer vaccine by oncologists. Dendritic cell based cancer vaccines are emerging as a new tool for the development of cancer vaccines. They are higher in safety and efficacy as compared to other methods used to check the breast cancer proliferation. The development of new methods shows the effort done by oncologists to alleviate the condition breast cancer patients. These products have to pass through several technological and regulatory approvals before making their way to market.

Governments of many countries are trying to advance in the field of breast cancer vaccine. The National Breast Cancer Coalition (NBCC), US, is advocating efforts to the development of breast cancer vaccines. The Artemis Project focuses on areas like collaborations for rapid progress in this area. In 2011, they planned to develop preventive breast cancer vaccine by the end of 2020 but the rate of progress shows that it will be achieved in coming years. The hopes with project are high that they will be able to help large number of patients.



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