

# Immuno-Molecular Markers in Breast Cancer and Exploration of their Role in Laboratory Diagnosis †

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**Abstract:** Breast cancer (BC) is the commonly diagnosed type of cancer in women and the second driving reason for death from malignant growth for women worldwide. It consists of a multisystem approach, including chemotherapy, radiotherapy, hormone therapy, or biopsy (bx) study. BC's anticipation is dictated by age, lymph node action, tumor score, and nuclear impression of ER, PR, and HER2. It is a research study on breast cancer to identify the changes and the size of the mass in the tumor microenvironment, which was tested with various markers. Prophylactic mastectomy being the preemptive mode of surgery, and the histopathology evaluation of the gene mutations (for instance, BRCA1 or BRCA2) stays the standard evaluation to confirm and categorize. The main purpose of doing ImmunoHistochemistry(IHC) is carried out by the preceding methods only, wherein wax melting is essential in it. The various markers are tested to recognize results, and by H&E staining, a procedure whether or not the tumor is present or absent was confirmed. The markers we used are ER, HR, PR, HER2, E-Cadherin, ki-67, GCDFP, EGFR, CK5/6, etc. Reports were collected from the subjects to compare the intensity, lymph node status, tumor-infiltrating lymphocytes, etc., and other such parameters of enormous kind of BC to understand the process and the treatment, which brings forward the need for further investigation in the field to develop strategies that elicit the therapeutic immune response against this deadly disease. Also, with the help of H&E Staining, involving the immune cells into action and dealing with it. In here, we found out:

- Whether a panel of markers (IHC) will help in avoiding multiple breast surgeries?
- Is postulating a panel of Immuno markers aid in assessing the behavior of BC and assess the prognosis in Pathology report rather than waiting for years together?
- What is the outcome of the Cancer microenvironment in the progression of BC?

**Keywords:** cancer immunology; tumor microenvironment; types; IHC; H&E staining; immuno molecular markers; clinical features; scoring; future scope.

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## **Conflicts of Interest**

The authors declare no conflict of interest.