Biomarker of Cancers

Cherdak Mandava

TU Institute of Medicine, Maharajgunj Nursing Campus, Nepal

Corresponding Author*

Cherdak Mandava

TU Institute of Medicine, Maharajgunj Nursing Campus, Nepal

E-mail: cherdak.m856@gmail.com

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Perspective

Biomarkers may be produced by the cancer tissue itself or by other cells in the body in response to cancer. They can be found in the blood, stool, urine, tumor tissue, or other tissues or bodily fluids. Notably, biomarkers are not limited to cancer. Biomarkers can be DNA, RNA, protein or metabolomic profiles that are specific to the tumor. Testing can include genomic testing to look at the DNA sequence, DNA or RNA tests to look for gene fusions, or tests to measure RNA or protein levels. A tumor marker is anything present in or produced by cancer cells or other cells of the body in response to cancer or certain benign (noncancerous) conditions that provides information about a cancer, such as how aggressive it is, whether it can be treated with a targeted therapy, or whether it is responding to clinic pathological and molecular.

Features, such as higher oestrogen receptor (ER) and progesterone receptor (PR) expression, a higher likelihood of human epidermal growth factor receptor-2 (HER2)- negative status, lower grade, and a lower risk of nodal metastasis, all of which contribute to better. Outcomes when compared to in vasiveductal carcinoma (IDC); indeed, the 10-year disease-free survival rate is higher in PMBC. Biomarkers are molecules that indicate normal or abnormal process taking place in your body and may be a sign of an underlying condition or disease. Various types of molecules, such as DNA (genes), proteins or hormones, can serve as biomarkers, since they all indicate something about your health.

They have major potential benefits for patients, particularly in contributing to 'personalized' medicine, and improved biomarkers should ultimately lead to improvements in outcomes and more efficient, safe, cost-effective and evidence-based use of health resources. Biomarkers can be used for patient assessment in multiple clinical settings, including estimating risk of disease, screening for occult primary cancers, distinguishing benign from malignant findings or one type of malignancy from another, determining prognosis and prediction for patients who have been diagnosed Biomarkers can be used for patient assessment in multiple clinical settings, including estimating risk of disease, screening for occult primary cancers, distinguishing benign from malignant findings or one type of malignancy from another, determining prognosis and prediction for patients who have been diagnosed.

Immune checkpoint inhibitors (ICIs), which will include monoclonal antibodies that target the programmed cell death protein (ligand) 1 [PD-(L)1] and the cytotoxic T lymphocyte-associated antigen 4 (CTLA-4), have changed cancer treatment. Despite the ICIs' excellent success, patients' long-term clinical reactions differ. To provide exact medical treatment, predictive indicators of ICI response are required.

PD-L1 expression, high microsatellite instability (MSI-H), tumour mutation burden (TMB), copy number alteration (CNA), neoantigen load (NAL), tumour immune microenvironment (TIME), gene expression profiles (GEPs), and some specific gene mutations have all been linked to ICI response as of today. Only a handful of them have been clinically validated, and even those that have been validated have limitations. In the CheckMate 568 research, for example, 44–50% of patients with high TMB or high PD-L1 expression did not respond to ICIs, but almost 12-15% of patients with low TMB or low PD-L1 expression experienced a partial or complete response. Exploration of novel exact biomarkers is thus essential to enhance clinical advantages.

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