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Types of Biomarkers and Tests for Cancer Treatment

Herbert Marcos*
Department of Biomedical Research, University di Pisa, Italy

DESCRIPTION

Biomarkers are naturally occurring molecules that can be used as indicators of normal biological processes or disease states. They play an important role in cancer research using immune histochemical (IHC) detection of specific biomarkers to study the mechanisms underlying disease initiation and progression. A major advantage of using IHC for cancer research is that it provides a visual context to the tumor and surrounding tumor microenvironment (TME), often helping to determine the most appropriate form of therapeutic intervention. To provide unique insights that can help Accurate detection of biomarkers by IHC requires highly specific and rigorously validated antibody reagents. CST adheres to the Hallmarks of Antibody Validation, a set of complementary strategies for confirming antibody specificity, sensitivity, and functionality in a given assay. Carefully tailored validation methods for biomarker antibodies for IHC ensure reliable results. This guide classifies the most important biomarkers for cancer research into seven categories, highlighting the value of examining multiple biomarker types in parallel to improve our understanding of cancer. Over the last 30 years, we have made great strides in both understanding and treating cancer. But cancer remains the second leading cause of death in the United States, and the director of the National Cancer Institute (NCI) is calling on the cancer community to end cancer suffering and death by 2015. Achieving this goal will require not only improved treatments, but also assessment of a person's cancer risk, detection of cancer at an early stage when it can be more effectively treated, and development of aggressive and non-invasive cancers. Improved methods are needed to differentiate between cancers, detect recurrence, and monitor response to therapy. Improving methods of screening asymptomatic populations for the presence of early-stage cancer is a particularly challenging problem. The American Cancer Society recently recommended several diagnostic tests to screen populations for early detection of many common cancers, including breast, colon, and prostate cancer. However, there are no practical screening methods for other common types of cancer, such as lung cancer. Imaging modalities can be used to identify cancer patients, but many are too labour-intensive and costly to screen large asymptomatic populations. Additionally, some have met with resistance from the general public as they can be awkward or unpleasant, limiting their usefulness for screening this group. In addition, imaging modalities often miss small lesions, usually diagnosing the disease at an advanced stage when therapeutic intervention is less effective. In recent years, there has been growing interest and enthusiasm for molecular markers as tools for cancer detection and prognosis, both as standalone diagnostic tools and as complements to existing imaging methods and techniques. Not all cancer cells are the same. Even people with the same type of cancer (such as breast or lung cancer) may have genetic changes in their cancer cells or have different amounts of certain proteins that help cancer cells grow.

CONCLUSION

These changes can also affect how the cancer responds to certain types of treatment, such as: Targeted drug therapy and immunotherapy. It is most effective when cancer cells have specific characteristics that distinguish them from normal cells. Some of these differences can be tested as biomarkers.

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CONFLICT OF INTEREST

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Corresponding author Herbert Marcos, Department of Biomedical Research, University di Pisa, Italy, E-mail: marcoherbert@hotmail.com

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