Cancer Biomarkers

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Opinion

Cancer Biomarkers (CB) are biomolecules produced either by the tumor cells or by other cells of the body in response to the tumor and CB could be used as screening/early detection tool of cancer, diagnostic, prognostic, or predictor for the overall outcome of a patient. Mutant proteins themselves detected by Selected Reaction Monitoring (SRM) have been reported to be the most specific biomarkers for cancers because they can only come from an existing tumor. About 40% of cancers can be cured if detected early through examinations.

Cancer biomarkers are biological molecules produced by the body or tumor in a person with cancer. Biomarker testing helps characterize alterations in the tumor. Biomarkers can be DNA, RNA, protein or metabolomic profiles that are specific to the tumor everything from blood pressure and heart rate to basic metabolic studies and x-ray findings to complex histologic and genetic tests of blood and other tissues. Biomarkers are measurable and do not define how a person feels or functions.

In order to determine if, and at what levels, certain biomarkers are present in your cancer, your doctor will need to take a sample of tumor tissue or bodily fluid and send it to a laboratory to conduct a series of advanced pathology and molecular profiling tests. When a biomarker is identified in a cancer through molecular or genetic testing, it tells the physician what makes the cancer grow and thrive, and that information allows physicians to decide what may be the most effective treatment for the patient.

Biomarkers can be classified by how they are used, for example, as a diagnostic biomarker, a prognostic biomarker, a pharmacological biomarker, and as a surrogate biomarker.

Biomarkers provide detailed measures of abnormal changes in the brain, which can aid in early detection of possible disease in people with very mild or unusual symptoms. People with Alzheimer's disease and related dementias progress at different rates, and biomarkers may help predict and monitor their progression. Biomarker tests known as liquid biopsies look in blood or other fluids for biomarkers from cancer cells.

There are two liquid biopsy tests approved by the Food and Drug Administration (FDA), called Guardant360 CDx and Foundation One Liquid CDx. With the exception of blood cancers, blood tests generally can't absolutely tell whether you have cancer or some other noncancerous condition, but they can give your doctor clues about what's going on inside your body. There has been no evidence to prove that tumor markers are 100 percent reliable for determining the presence or absence of cancer.

Many circumstances, such as other health issues or disease, can contribute to raise tumor marker levels. Immunologic markers have an important role in demonstrating intermediate end points of a therapeutic intervention and ultimately may be useful in predicting clinical outcomes. These markers are important to the development of successful immunotherapy strategies in cancer. An ideal biomarker has certain characteristics that make it appropriate for checking a particular disease condition. Ideally, an ideal marker should have the following features: Safe and easy to measure. Cost efficient to follow up.

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