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Utilization of Biomarkers in Way to Identify Specific Site in Genome

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DESCRIPTION

A biomarker is a measurable indicator of the presence or severity of a disease state. A biomarker, in general, is anything that can be used as an indicator of a specific disease state or other physiological state of an organism. The indicator may be chemical, physical, or biological in nature, and the measurement may be functional, physiological, biochemical, cellular, or molecular, according to the WHO. A biomarker is a substance introduced into an organism to study organ function or other aspects of health. Rubidium chloride, for example, is used in isotopic labelling to assess heart muscle perfusion. It can also be a substance whose presence indicates a specific disease state, such as the presence of an antibody indicating an infection. A biomarker is a change in the expression or state of a protein that correlates with the risk or progression of a disease, or with the disease's susceptibility to a given treatment. Biomarkers are biological properties or molecules that can be detected and measured in body parts such as blood or tissue. They can indicate either normal or abnormal bodily processes. Biomarkers can be cells, molecules, or genes, as well as gene products, enzymes, or hormones. Biomarkers can also be complex organ functions or general changes in biological structures. Although the term "biomarker" is relatively new, biomarkers have long been used in pre-clinical research and clinical diagnosis. Body temperature, for example, is a well-known biomarker for fever. Blood pressure is used to assess the risk of having a stroke. It is also widely accepted that cholesterol levels are a biomarker and risk factor for coronary and vascular disease, and that C-reactive protein (CRP) is an inflammatory marker. Biomarkers are useful in a variety of ways, including monitoring disease progression, determining the most effective therapeutic regimens for a specific cancer type, and determining long-term susceptibility to cancer or its recurrence. Chemical, physical, or biological parameters can all be used. Biomarker is defined as "the subset of markers that may be discovered using genomics, proteomics, or imaging technologies." Biomarkers are important in medicinal biology. Biomarkers aid in early disease detection, disease prevention, drug target identification, drug response, and so on. Several biomarkers for various diseases have been identified, including serum LDL for cholesterol, blood pressure, and the P53 gene and MMPs as tumour markers for cancer. It is essential to differentiate between disease-related and drug-related biomarkers. Disease-related biomarkers predict the likely effect of treatment on the patient (risk indicator or predictive biomarkers), whether a disease exists (diagnostic biomarker), or how such a disease may develop in an individual case regardless of treatment type (prognostic biomarker). Predictive biomarkers aid in predicting the most likely response to a specific treatment type, whereas prognostic biomarkers show disease progression with or without treatment. Drug-related biomarkers, on the other hand, indicate whether a drug will be effective in a specific patient and how the patient's body will process it. There are numerous novel biomarkers used in various medical specialties, in addition to long-known parameters such as those included and objectively measured in a blood count. Currently, intensive research is being conducted to discover and develop novel and more effective biomarkers.

CONCLUSION

These "new" biomarkers have become the foundation of preventive medicine, which is defined as medicine that detects diseases or the risk of disease early and takes specific countermeasures to prevent disease development. Biomarkers are also seen as the key to personalised medicine, which involves tailoring treatments to specific patients in order to intervene in disease processes more effectively. Such biomarkers frequently indicate changes in metabolic processes.

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CONFLICT OF INTEREST

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