

# Editorial on Therapeutic Response in Biomarkers

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## Editorial

Prognostic information about the biomarker is a clinical or biological characteristic that provides information on the likely course of the disease it gives OME of the patient. The term biomarker, or biological marker, refers to a broad range of measures which capture what is happening in a cell or organism at a given moment. Biomarkers are objective medical signs (as opposed to symptoms reported by the patient) used to measure the presence or progress of disease, or the effects of treatment. Biomarkers are characteristics of the body that you can measure.

So your blood pressure is actually a biomarker. Biomarkers are integral to drug development; they're really critical, because we need to measure the effects of investigational drugs on people during the clinical trials. A biological molecule found in blood, other body fluids, or tissues that is a sign of a normal or abnormal process, or of a condition or disease. A biomarker may be used to see how well the body responds to a treatment for a disease or condition. It is also called molecular marker and signature molecule.

There are two major types of biomarkers biomarkers of exposure, which are used in risk prediction, and biomarkers of disease, which are used in screening and diagnosis and monitoring of disease progression. Examples of biomarkers include 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.

Infectious diseases and cancer along with other diseases are mostly diagnosed by biomarker detection in laboratories using conventional tests such as Enzyme Linked Immunosorbent Assay (ELISA), immunofluorescence, western blotting, immunodiffusion, Polymerase Chain Reaction (PCR). Diagnostic biomarkers are used for the critical determination of whether a patient has a particular medical condition for which treatment may be indicated or whether an individual should be enrolled in a clinical trial studying a particular disease. In essence, there are three important technical attributes: first, the marker must be present in peripheral body tissue and/or fluid (e.g., blood, urine, saliva, breath or cerebrospinal fluid); second, it must be easy to detect or quantify in assays that are both affordable and robust; and third; a biological molecule found in blood, other body fluids, or tissues that is a sign of a normal or abnormal process, or of a condition or disease. A biomarker may be used to see how well the body responds to a treatment for a disease or condition.

Biomarker validation refers to the process by which biomarkers are tested for their accuracy and consistency, as well as their ability to tell us something important about our health 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. Biomarkers may be produced by the cancer tissue itself or by other cells in the body in response to cancer. Biomarker assays are used when an unknown concentration of an analyte within a sample needs to be quantified. It is important to define the relevant assay parameters before one begins the development, optimization, and validation of an immunoassay analyte (hapten or antigen) to be measured.

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