

Glossary

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Biomarker

A biomarker is a substance whose detection indicates a particular disease state, and more specifically, changes in that substance's expression or state will often correlate with the risk or progression of a particular disease. For example, the appearance of troponin in the blood is a biomarker indicative of a myocardial infarction. Biomarkers can be used to assess disease risk, presence of disease in an individual, or to modify treatment for disease in an individual.

Genomics

Genomics is the study of an organism's genome (full DNA sequence). Genomics includes an intensive effort to determine the complete DNA sequence of organisms and fine-scale genetic mapping efforts. Also included in this field are studies of intragenomic-phenomena such as epistasis, heterosis, pleiotropy, and other interactions between alleles and loci within the genome.

Hibernation

Hibernation refers to a segment of myocardium that exhibits some type of abnormality in contractile function (ie. hypokinetic myocardial wall segment), often in the scenario of chronic ischemia. Hibernating myocardium is relevant in the clinical setting because although the segment of myocardium in hibernation has contractile dysfunction, it remains viable and if revascularized in time, can be saved with a restoration of its contractile function.

Metabolomics

Metabolomics is the systematic study of the unique chemical fingerprint that a cellular process will leave behind. Metabolomics encompasses the cellular process' small-molecule metabolite profile, and provides an instantaneous snapshot of a cell's physiology.

Proteomics

Proteomics is the large-scale study of proteins, focusing primarily on a particular protein's structure and function (often in regards to growth, health, disease, and/or resistance to disease).

Remodeling

Remodeling of the heart refers to the alterations in the size, shape, and function of the heart after injury (primarily of ischemic nature). However, remodeling can also arise from increases in pressure or volume overload on the heart. During remodeling, a number of histopathological and structural changes occur to the left ventricular myocardium, resulting in a progressive impairment in left ventricular performance. Eventually, the effects of the ventricular remodeling may be too severe that systolic performance is greatly diminished, resulting in heart failure.

Scavenger

A scavenger is in general, an antioxidant molecule capable of slowing or preventing the oxidation of other molecules. In the setting of cardiovascular disease, reactive oxygen species transfer electrons to oxidizing agents, often producing free radicals that may initiate a chain reaction of oxidative reactions that damage myocardial cells. The scavenger molecule may act as an oxidizing agent itself and terminate the chain reaction being initiated by the free radical(s).

Viability

In terms of cardiovascular disease, and more specifically, ischemic heart disease, viability refers to the status of myocardial cells/tissue that are rendered ischemic and what their capacity for survival is. Viable myocardium is the myocardium that is still alive during ischemia, and thus can be saved with timely revascularization.