Cripto-1 as a Biomarker for Cardiac Ischemia

Published date: Feb. 1, 2012

Technology description

Ischemic heart disease is a major cause of human cardiac morbidity and mortality, affecting over 14 million people in the United States alone. Current detection of cardiac ischemia relies upon identification of electrocardiographic anomalies and the release of cardiac markers from the damaged myocardial tissue. Unfortunately, patients with acute myocardial infarction are often insensitive to these tests during the early phases of intervention and as a result more markers for cardiac ischemic disease are needed.
This technology describes Cripto-1 as a biomarker for infarcted cardiac tissues. Cripto-1 is a member of the epidermal growth factor (EGF)-related proteins and is currently thought to play an important role in several cancers.

Application area

Diagnostic tool for the detection of myocardial infarction.
Method to monitor stem cell activity in damaged myocardial tissue.

Advantages

The present invention shows that Cripto-1 is overexpressed in infarcted myocardial tissue, and not expressed or weakly expressed in non-infarct related heart disease tissues and normal tissues. Furthermore, the overexpression of Cripto-1 correlates with the hypoxia-inducible factor-1-alpha indicating specificity to ischemic heart tissue. The expression of Cripto-1 has also been shown to be highly expressed in stem cells, which may have an important role in the repair of damaged myocardial tissue. Thus, this technology could represent a new biomarker for the diagnosis of myocardial infarction as well as a surrogate biomarker to monitor the healing process including regenerative stem cell activity of the infarcted myocardial tissue.

Institution

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