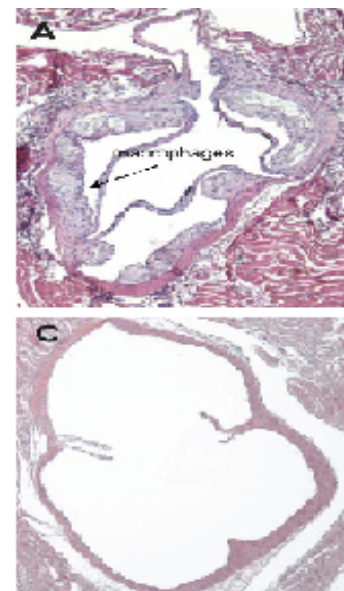


WNT5A FOR SCREENING, DIAGNOSIS, STAGING AND IDENTIFICATION OF VULNERABLE VASCULAR PLAQUES

TECHNOLOGY OVERVIEW

Atherosclerosis is a medical condition where the walls of arteries become hardened due to the formation of plaques. This can consequently disrupt the flow of blood and cause a heart attack among other cardiovascular complications. Wnt5a is a RNA protein which is believed to play a significant role in atherosclerosis. Researchers have developed a unique assay that facilitates the detection and semi-quantification of Wnt5a in a solution. Wnt5a is highly expressed in atherosclerosis legions, particularly in foam cells (cells in swollen artery walls) that are present in the plaque regions. This expression is co-related to the number of foam cells in the legions and also the type of the plaque. The top-most figure (A) shows a stained cross-sectional photograph of an artery having an atherosclerotic condition; it is clearly marked by the presence of macrophages around the walls. The figure (C) below is one of a healthy artery. Through the detection of Wnt5a in a solution, doctors will be able to diagnose patients at the risk of acute cardiovascular complications due to atherosclerosis, and provide timely medical attention.



POTENTIAL FIELDS OF USE

The technology can have important implications in the health care industry. Current methods of detecting atherosclerosis lack effectiveness being highly expensive as well as physically invasive techniques. They have limited success in diagnosing atherosclerosis plaques at earlier stages. Atherosclerosis is the leading cause of cardiovascular related deaths, accounting for more than 50% of the mortality cases. Over the next 15-20 years, it is believed to surpass infectious diseases as the major cause of deaths worldwide. Over \$1 billion was annually spent on imaging techniques to diagnose cardiovascular conditions in 2002, a figure that stands much higher currently. These data provide a strong indication of the benefits and reach of the developed technology.

BENEFIT ANALYSIS

The proposed technique has several advantages over available diagnostic tools:

- Provides a non-invasive diagnostic measure of atherosclerosis condition using the ELISA test.
- Effectively establishes the evaluation of the Wnt5a protein as a marker for macrophages.
- Establishes an accurate assay to detect the level of atherosclerosis damage to the plaque regions.
- Exhibits tremendous promise of benefitting thousands of asymptomatic patients who usually suffer complications at highly advanced stages of the disease.

STAGE OF DEVELOPMENT

The technology lies at an advanced stage of development, having undergone extensive laboratory testing. Researchers have characterized the Wnt5a expression in the atherosclerotic legions of humans and rats. Upon detailed analysis, it was proven that the macrophage rich legions of atherosclerotic plaques were rich in the Wnt5a protein. It has also been established that the quantity of this expression varies in different areas of arterial wall.

FUTURE DEVELOPMENT

The technology would require additional research and experimental validation before it becomes available for commercial use.

LICENSING OPPORTUNITIES

The patent application for this technology has been filed. Licensing opportunities are available.

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