



THE UNIVERSITY of TEXAS

HEALTH SCIENCE CENTER AT HOUSTON

Office of Technology Management

TREATMENT AND PREVENTION OF VASCULAR DISEASE WITH HYBRID CYCLOOXYGENASE:EICOSANOID PROTEINS

Market: Some form of vascular disease effects one in four Americans, and costs for treatment reach into the billions. Prostanoids are an important, and emerging, therapeutic target in the campaign against vascular disease.

Competitors and Current Problems: The prostanoid synthesis pathway is complicated, difficult to direct, and can have multiple end results, not all of them favorable. For example, some of the recent issues in the media and scientific community surrounding COX-2 inhibitors (such as increased potential of heart attacks among patients on COX-2 inhibitors) may involve unintended consequences of altering this pathway. On the other hand, therapeutic benefits may result from directing the prostanoid pathway in other directions. One promising direction of interest involves increasing Prostaglandin I₂ (PGI₂) production, an important anti-thrombotic and vasodilative agent which could have therapeutic benefits for a wide array of diseases associated with these conditions. Compositions and methods which increase the efficiency of this pathway will be of increasing interest for the foreseeable future.

The Technology: A faculty member at the University of Texas Health Science Center at Houston has developed novel hybrid proteins which can be used for the treatment and prevention of vascular diseases. More particularly, this invention outlines hybrid proteins that convert arachadonic acid into a prostanoid of choice. The present invention describes hybrid proteins which combine a cyclooxygenase and an eicosanoid synthesizing enzyme. Both enzymes act to convert arachadonic acid into various prostanoids. The hybrid protein's benefit is twofold. First, the composition provides for greater speed and efficiency, as it eliminates a rate limiting step in the reaction with both enzymes housed in the same protein. Second, the composition may have improved therapeutic performance, in that it directs the pathway to a more beneficial result. Given the developing area of prostanoid function, this flexibility will likely be a useful tool to those in the medical community in the present as well as well into the future.

NON-CONFIDENTIAL TECHNOLOGY DESCRIPTION

The preceding is intended to be a non-confidential summary of a novel technology created at the University of Texas Health Science center at Houston (UTHSCH), for which the University has obtained patent protection.

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