

[2021-091]

Therapy - Cardiology



> Preclinical

Problem

Heart disease remains a leading cause of mortality worldwide, with myocardial infarcts causing severe cardiac dysfunction and limited treatment options. Current interventions, such as heart transplants and ventricular assist devices, are restricted by supply shortages and carry substantial risks, rendering them impractical for most patients.

As the heart lacks significant regenerative capabilities, the damage from heart attacks often leads to chronic fibrosis and heart failure. Existing therapies, including gene and cell-based treatments, haven't successfully made the leap from pre-clinical promise to clinical reality. The challenge is to develop a therapy that promotes cardiac repair without causing the adverse effects. Platelet-derived growth factor (PDGF)-based therapies provide a potential approach as long as proliferation and fibrosis is limited.

Solution

This invention relates to peptide mimetic compounds, inspired by the natural healing capabilities of PDGF but engineered to circumvent the pitfalls of prolonged exposure that can lead to fibrosis. These novel compounds mimic a specific loop region of the PDGF-B chain, crucial for receptor binding and mitogenic activity, and it has been shown to enhance cardiac repair and improve vascularity in damaged heart tissue.

An albumin protein conjugate attached to the compound increases its in vivo activity. Furthermore, it is designed to bind to PDGF receptors allowing it to effectively mimic the major functions of PDGF. This peptide also mimics wound healing functions when tested in vitro.

Commercial Opportunity

This is an opportunity to acquire new peptide-based mimetic compounds with wound-healing properties with applications for cardiac function restoration. This technology can be used to develop new cardiac treatments.

Intellectual Property Status

NPE AU, EP, JP US.

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Potential Commercial Applications

- Post-Myocardial Infarct Recovery
- Cardiac Function Restoration
- Chronic Heart Failure Management
- Minimally Invasive Cardiac Treatments

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