

Treating Cardiac Diseases using a Bone Morphogenetic Protein

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Technology description

Cardiovascular disease is the leading cause of death worldwide. Heart failure can develop from a variety of pathological conditions, including hypertension, atherosclerosis, viral infections, pharmacological agents, or traumatic injury. Pathological progression of cardiac disease can lead to fibrosis - a loss of normal tissue architecture and replacement with scar tissue. Cardiac fibrosis can cause organ failure, but there are no effective ways to reduce or reverse cardiac fibrosis. Currently available cardiovascular therapeutics have limited efficacy in treating cardiac fibrosis. This technology provides methods of preventing or slowing fibrosis and cell death in diseased or injured cardiac tissue.

The use of bone morphogenetic protein 10 as a therapeutic for treating cardiac fibrosis

This technology enables the effective treatment of patients suffering from cardiac injury by preventing and slowing fibrosis. Provided therapeutics include a clinical amount of a bone morphogenetic protein-10 (BMP-10). These compositions are administered to a subject by an injection, tissue graft, or implantable device. Treatments with BMP-10 reduce cardiomyocyte apoptosis and cardiac fibrosis. By decreasing, slowing, or preventing excessive extracellular matrix deposition of cardiac fibroblasts, BMP-10 can slow or preclude the progression of diseased heart to heart failure.

Publications

[Overexpression of bone morphogenetic protein 10 in myocardium disrupts cardiac postnatal hypertrophic growth. Chen H, Yong W, Ren S, Shen W, He Y, Cox KA, Zhu W, Li W, Soonpaa M, Payne RM, Franco D, Field LJ, Rosen V, Wang Y, Shou W. J Biol Chem. 2006 Sep 15;281\(37\):27481-91.](#)

Application area

Treatment of cardiac injury

BMP-10 research in cell death or injured tissue

Advantages

More effective treatment of cardiac fibrosis
Suitable for treating a wide variety of cardiac diseases

Institution

[Indiana University](#)

Inventors

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