

CLAIMS

~~What is claimed is:~~

1. A biodegradable sponge composition for use in a~~A~~ method of treating or preventing a cardiac arrhythmia in a subject identified as being at risk of developing a cardiac arrhythmia, comprising administering to the subject a therapeutically effective amount of ~~the~~ a biodegradable sponge composition,

the biodegradable sponge composition comprising a mammalian extracellular matrix, ~~selected from the group consisting of small intestinal submucosa, urinary bladder submucosa, stomach submucosa, liver submucosa, and liver basement membrane,~~

wherein the biodegradable sponge composition is sandwiched between and in contact with epicardial tissue and pericardial tissue and further comprises at least one of an antiarrhythmic agent, an anti-inflammatory agent, a lipid- lowering drug, cells, and a protein.

2. The biodegradable sponge composition~~method~~ of claim 1, wherein the cells are stem cells.

3. The biodegradable sponge composition~~method~~ of claim 1, wherein the protein is at least one of hyaluronic acid, proteoglycan, and an aminoglycan.

4. ~~The of claim 1, wherein the mammalian extracellular matrix is selected from the group consisting of small intestinal submucosa, urinary bladder submucosa, stomach submucosa, liver submucosa, and liver basement membrane.~~

45. The biodegradable sponge composition~~method~~ of claim 1, wherein the mammalian extracellular matrix is produced in vitro from culturing mammalian cells.

56. The biodegradable sponge composition~~method~~ of claim 1, wherein the composition further comprises a synthetic extracellular matrix.

67. The biodegradable sponge composition~~method~~ of claim 1, wherein the mammalian extracellular matrix is selected from the group of tissues consisting of dermis, fascia, pericardium, parenchymal tissue, and myocardial extracellular matrix.

78. The biodegradable sponge composition~~method~~ of claim 1, wherein the mammalian extracellular matrix is a collagen scaffold from a mammalian tissue source.

89. The biodegradable sponge composition~~method~~ of claim 1, wherein the method is for treating or preventing a cardiac arrhythmia which is atrial fibrillation or ventricular fibrillation.

910. The biodegradable sponge composition~~method~~ of claim 1, wherein the method is for treating or preventing a cardiac arrhythmia in a subject who has undergone heart surgery.

104. The biodegradable sponge composition method of claim 1, wherein the method is for treating or preventing a cardiac arrhythmia in a subject who has had a myocardial infarction.

11. Use of a biodegradable sponge composition in the preparation of a composition for use in a method of treating or preventing a cardiac arrhythmia in a subject identified as being at risk of developing a cardiac arrhythmia, comprising administering to the subject a therapeutically effective amount of the biodegradable sponge composition, the biodegradable sponge composition comprising a mammalian extracellular matrix selected from the group consisting of small intestinal submucosa, urinary bladder submucosa, stomach submucosa, liver submucosa, and liver basement membrane, wherein the biodegradable sponge composition further comprises at least one of an antiarrhythmic agent, an anti-inflammatory agent, a lipid- lowering drug, cells, and a protein, and is to be sandwiched between and in contact with epicardial tissue and pericardial tissue.

12. The use of claim 11, wherein the cells are stem cells.

13. The use of claim 11, wherein the protein is at least one of hyaluronic acid, proteoglycan, and an aminoglycan.

14. The use of claim 11, wherein the mammalian extracellular matrix is produced in vitro from culturing mammalian cells.

15. The use of claim 11, wherein the composition further comprises a synthetic extracellular matrix.

16. The use of claim 11, wherein the mammalian extracellular matrix is selected from the group of tissues consisting of dermis, fascia, pericardium, parenchymal tissue, and myocardial extracellular matrix.

17. The use of claim 11, wherein the mammalian extracellular matrix is a collagen scaffold from a mammalian tissue source.