THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1). A method for sterilizing a cross-linked collagen-based biomaterial comprising contacting said cross-linked collagen-based biomaterial with a sterilization solution comprising between 3% and 6% v/v propylene oxide and incubating said biomaterial between 30°C and 55°C for greater than 48 hours; with the proviso that the sterilization solution does not include alcohol.

2). The method of claim 1, wherein the incubation temperature is between 35°C and 50°C.

3). The method of claim 1, wherein the incubation temperature is about 45°C.

4). The method of claim 1, wherein the incubation temperature after 48 hours is reduced to room temperature.

5). The method of claim 1, wherein the sterilization solution comprises between 3.8% and 4.5% v/v propylene oxide.

6). The method of claim 1, wherein the sterilization solution comprises about 4% v/v propylene oxide.

7). The method of claim 1, wherein the sterilization step is carried out for 2 to 10 days or more.

8). The method of claim 1, wherein the collagen-based biomaterial is isolated from an animal selected from the group consisting of an ovine, a bovine, a caprine, an equine, a porcine, a marsupial and a human.

9). The method of claim 1, wherein the biomaterial is a cellular tissue selected from the group consisting cardiovascular tissue, heart tissue, heart valve, aortic roots, aortic wall, aortic leaflets, pericardial tissue, connective tissue, dura mater, dermal tissue, a vascular tissue, cartilage, pericardium, ligament, tendon, blood vessels, umbilical tissue, bone tissue, fasciae, and submucosal tissue and skin.

10). The method of claim 9, wherein the biomaterial further comprises synthetic analogs ~~formed from synthetic polymers, biological polymers, or both.~~

11). A method for sterilizing a collagen-based biomaterial comprising:

(a) providing a collagen-based biomaterial and contacting with 0.625% v/v glutaraldehyde solution and potassium di-hydrogen phosphate pH 7.4;

(b) incubating said biomaterial at about 1-5°C for at least 5 days to produce a cross-linked collagen-based biomaterial;

(c) contacting said cross-linked collagen-based biomaterial with a sterilization solution comprising between 3% and 6% v/v propylene oxide and incubating said biomaterial between 30°C and 55°C for greater than 48 hours; with the proviso that the sterilization solution does not include alcohol.

12). A method of sterilizing and storing a cross-linked collagen -based biomaterial comprising contacting said cross-linked collagen-based biomaterial with a solution comprising between 3% and 6% v/v propylene oxide and incubating said biomaterial between 30°C and 55°C for greater than 48 hours and then allowing the biomaterial to remain in contact with said propylene oxide until same converts to propylene glycol; with the proviso that the solution does not include alcohol.

13). A sterilized, cross-linked collagen-based biomaterial produced by the method of claim 1.

14). A container comprising a sterilized, cross-linked collagen-based biomaterial and a 3% to 6% v/v propylene glycol solution, wherein said propylene glycol has resulted from the conversion *in situ* of a 3% to 6% v/v propylene oxide solution while in the presence of the biomaterial.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1). A method for sterilizing and storing a cross-linked collagen-based biomaterial for implantation in a living patient comprising:

(i) contacting said cross-linked collagen-based biomaterial with a solution comprising between 3% and 6% v/v propylene oxide and incubating said biomaterial between 30°C and 55°C for greater than 48 hours; and then

(ii) storing said biomaterial for at least 4 days or until the propylene oxide has converted to propylene glycol.

2). A method according to claim 1, wherein the incubation temperature is between 35°C and 50°C.

3). A method according to claim 1, wherein the incubation temperature is about 45°C.

4). A method according to any one of claims 1 to 3, wherein the incubation temperature after 48 hours is reduced to room temperature.

5). A method according to any one of claims 1 to 4, wherein the solution comprises between 3.8% and 4.5% v/v propylene oxide.

6). A method according to any one of claims 1 to 5, wherein the solution comprises about 4% v/v propylene oxide.

7). A method according to any one of claims 1 to 6, wherein the sterilization step is carried out for 2 to 10 days or more.

8). A method according to any one of claims 1 to 7, wherein the collagen-based biomaterial is isolated from an animal selected from the group consisting of an ovine, a bovine, a caprine, an equine, a porcine, a marsupial and a human.

9). A method according to any one of claims 1 to 8, wherein the biomaterial is a cellular tissue selected from the group consisting cardiovascular tissue, heart tissue, heart valve, aortic roots, aortic wall, aortic leaflets, pericardial tissue, connective tissue, dura mater, dermal tissue, a vascular tissue, cartilage, pericardium, ligament, tendon, blood vessels, umbilical tissue, bone

tissue, fasciae, and submucosal tissue and skin.

10). A method according to claim 9, wherein the biomaterial further comprises synthetic analogs formed from synthetic polymers, biological polymers, or both.

11). A method for sterilizing and storing a collagen-based biomaterial for implantation in a living patient comprising:

(a) providing a collagen-based biomaterial and contacting same with a solution comprising glutaraldehyde and potassium di-hydrogen phosphate pH 7.4;

(b) incubating said biomaterial for a minimum period of 24 hours to produce a cross-linked collagen-based biomaterial;

(c) contacting said cross-linked collagen-based biomaterial with a solution comprising between 3% and 6% v/v propylene oxide and incubating said biomaterial between 30°C and 55°C for greater than 48 hours; and then

(d) storing said biomaterial for at least 4 days or until the propylene oxide has converted to propylene glycol.

12). A method of sterilizing and storing a cross-linked collagen -based biomaterial for implantation in a living patient comprising contacting said cross-linked collagen-based biomaterial with a solution comprising between 3% and 6% v/v propylene oxide and incubating said biomaterial between 30°C and 55°C for greater than 48 hours and then reducing the temperature below 30°C and allowing the biomaterial to remain in contact with said propylene oxide for at least 4 days or until same converts to propylene glycol.

13). A sterilized, cross-linked collagen-based biomaterial produced by a method according to any one of claims 1 to 12.

14). A container comprising a sterilized, cross-linked collagen-based biomaterial and a 3% to 6% v/v propylene glycol solution, wherein said biomaterial has been produced by a method according to any one of claims 1 to 12.