CLAIMS

1. A mitral valve prosthesis to be transplanted in a heart, comprises:

an asymmetrical ring, the asymmetrical ring is dimensioned to mimic a native mitral annulus of a patient;

the asymmetrical ring is constructed from a flexible material rolled onto itself towards an outer side of the valve;

an anterior flexible leaflet and a posterior flexible leaflet, said anterior and posterior leaflets suspended from the asymmetrical ring and configured to substantially coapt with each other;

each of the anterior and posterior leaflets shape is configured to mimic the shape of a native mitral valve, wherein the anterior and posterior leaflets create an orifice through which blood flows in one direction;

at least two sets of primary cords, each set of primary cords attached to the anterior or posterior leaflet on a first end and attached into a cap on a second end, the cap is configured to be attached onto papillary muscles of the heart on another end of the cap; and

at least one secondary cord, the at least one secondary cord is attached on one end to a mid - section of the posterior leaflet and on the other end to a mid - section of the primary cord.

2. The mitral valve prosthesis of claim 1, further comprising a coaptation surface continuing each one of the anterior and posterior leaflets and attached to each set of primary cords; said coaptation surface configured to enhance sealing of said mitral valve prosthesis.

3. The mitral valve prosthesis of claim 1, wherein said asymmetrical ring further comprises at least two strands constructed in a coiled coil structure.

4. The mitral valve prosthesis of claim 1, wherein said asymmetrical ring comprises two layers of material folded together to provide elasticity, and a third layer to provide structural stability.

5. The mitral valve prosthesis of claim 1, wherein the asymmetrical ring comprises two layers of bovine pericardium; and a third layer of Glycine or Proline to provide strength.

6. The mitral valve prosthetic of claim 5, wherein said layers are connected together via sutures stapler pins, glue or any combination thereof.

7. The mitral valve prosthesis of claim 1, wherein said asymmetrical ring, said anterior flexible leaflet and said posterior flexible leaflet, said at least two primary cords, said cap or any combination thereof is made of bovine pericardium.

8. The mitral valve prosthesis of claim 1, wherein the leaflet shape is extended by 1 - 5 mm to allow better coaptation and cord attachment.

9. The mitral valve prosthesis of claim 1, wherein the leaflet shape is designed in a semicircular fashion along half of the length of the anterior flexible leaflet and the posterior flexible leaflet such that both leaflets create an 'S' shaped seal when coapted.

10. The mitral valve prosthesis of claim 1, wherein the at least two sets of primary cords are attached to an opening of the cap, said opening located in the middle of the cap.

11. The mitral valve prosthesis of claim 1, wherein each of the at least two sets of primary cords is attached to a mid-section of the anterior or posterior leaflet such to mimic a naturally occurring mitral valve.

12. The mitral valve prosthesis of claim 1, wherein said anterior and posterior leaflets are made of a single unit, connected to the asymmetrical ring and attached to at least two sets of primary cords.

13. The mitral valve prosthesis of claim 1, further comprising an extension connected on one end to the anterior flexible leaflet and on the other end to at least two sets of primary cords, and configured to allow coaptation between said anterior flexible leaflet and said posterior flexible leaflet.

14. The mitral valve prosthesis of claim 1, wherein at least one part of the at least two sets of primary cords comprises, the patient's own native mitral valve chordae.

15. The mitral valve prosthesis of claim 1, wherein at least one part of the at least two sets of primary cords comprises, the patient's own native mitral valve chordae and at least a part of the patient's own native leaflet.

16. The mitral valve prosthesis of claim 1, wherein the asymmetrical ring further comprises a radiopaque marker filament, the radiopaque marker filament is inserted inside the rolled flexible material.

17. The mitral valve prosthesis of claim 1, wherein the mitral valve prosthesis further comprises sutures made of radiopaque suture material, said sutures are formed through the ring.

18. The mitral valve prosthesis of claim 1, wherein the at least one secondary cords is 30-40% thicker and wider with respect to the primary cords.

19. A mitral valve prosthesis to be transplanted in a heart, comprises:

an asymmetrical ring dimensioned to mimic a native mitral annulus of a patient; the asymmetrical ring is constructed from a flexible material rolled onto itself towards an outer side of the mitral valve;

two leaflets suspended from the asymmetrical ring, said leaflets constructed on opposite sides of an incision made along a material similar to the material the asymmetrical ring is constructed from, wherein the incision creates an orifice through which blood flows in one direction;

at least two sets of primary cords, each set of primary cords attached to one of the two leaflets on a first end, and attached into a bundle on a second end;

at least one secondary cord, the at least one secondary cord is attached on one end to a mid - section of the posterior leaflet and on the other end to a mid - section of the primary cord;

and a cap to be connected to the at least two sets of primary cords on one end of the cap and configured to be sutured onto papillary muscles of the heart on another end of the cap.

20. The mitral valve prosthesis of claim 19, wherein said each set of primary cords is attached to one of the two leaflets via extensions configured to allow coaptation between said two leaflets.

21. The mitral valve prosthesis of claim 20, wherein said each set of primary cords is comprised in part from the patient’s own native mitral valve cords.