

~~Having described the invention, the following is claimed:~~Claims

1. A biocompatible tissue graft comprising:
an extracellular matrix patch having a peripheral surface; and
at least one fiber stitched in a reinforcing pattern to mitigate tearing of the graft; and/or improve the fixation retention of the graft, ~~and/or limit cyclic stretching of the graft and substantially maintain these properties following partial enzymatic degradation of the graft while it remodels,~~ the at least one fiber having at least one free end extending beyond the peripheral surface of the extracellular matrix for securing the patch to a host tissue.
2. The tissue graft of claim 1, wherein the at least one fiber extends at a non-perpendicular angle to the peripheral surface of the patch.
3. The tissue graft of claim 1, wherein the at least one fiber extends beyond opposing peripheral surfaces of the patch.
4. The tissue graft of claim 1, wherein the at least one fiber comprises a first fiber that extends beyond a first pair of adjacent peripheral surfaces and a second fiber that extends beyond a second pair of opposing peripheral surfaces different from the first pair.
5. The tissue graft of claim 1, wherein the fiber comprises a biocompatible material that is bioresorbable, biodegradable, or non-resorbable.
6. The tissue graft of claim 1, wherein at least one of the patch and the fiber is modified to improve adhesion between the patch and the fiber.
7. The tissue graft of claim 1, wherein the at least one fiber is stitched into the patch in one of a linear pattern, a concentric pattern, multiple concentric patterns, and/or a cross-hatched configuration.
8. The tissue graft of claim 1, wherein the patch is decellularized.

9. The tissue graft of claim 1, wherein the patch further comprises at least one progenitor cell.

10. The tissue graft of claim 1, wherein the patch further comprises at least one biologically active molecule selected from the group consisting of drugs, sclerosing agents, enzymes, hormones, cytokines, colony-stimulating factors, vaccine antigens, antibodies, clotting factors, angiogenesis factors, regulatory proteins, transcription factors, receptors, and structural proteins, nucleic acid therapeutic agents, and combinations thereof.

11. The tissue graft of claim 1, wherein the extracellular matrix patch comprises a fascia patch.

12. The tissue graft of claim 1, wherein the at least one fiber is radio-opaque to allow the location, integrity, and/or deformation of the tissue graft to be assessed in a living system.

13. A method of constructing a biocompatible tissue graft comprising:
providing an extracellular matrix patch having a peripheral surface;
stitching at least one fiber into the patch in a reinforcement pattern to mitigate tearing of the graft, and/or improve the fixation retention of the graft, ~~and/or limit cyclic stretching of the graft and substantially maintain these properties following partial enzymatic degradation of the graft while it remodels,~~ the at least one fiber having a free end that extends beyond the peripheral surface and being effective for securing the graft to a host tissue.

14. The method of claim 13, wherein the at least one fiber is stitched into the patch to extend at a non-perpendicular angle to the peripheral surface of the patch.

15. The method of claim 13, wherein the at least one fiber is stitched into the patch to extend beyond opposing peripheral surfaces of the patch.

16. The method of claim 13, wherein the at least one fiber comprises a first fiber stitched into the patch to extend beyond a first pair of opposing peripheral surfaces and a second fiber stitched into the patch to extend beyond a second pair of opposing peripheral surfaces different from the first pair.

17. The method of claim 13, wherein the step of stitching at least one fiber into the patch comprises stitching fibers into the patch in at least one of a concentric pattern, a linear pattern, multiple concentric patterns, and/or a cross-hatched pattern.

18. The method of claim 13, wherein the fiber comprises a biocompatible material that is bioresorbable, biodegradable, or non-resorbable.

19. The method of claim 13 further comprising the step of modifying at least one of the fiber or the patch to improve adhesion between the fiber and the patch.

20. The method of claim 13 further comprising the step of decellularizing the patch.

21. The method of claim 13 further comprising the step of seeding at least one progenitor cell into the patch.

22. The method of claim 13, wherein the at least one fiber is radio-opaque to allow the location, integrity, and/or deformation of the tissue graft to be assessed in a living system.

~~23. A method for repairing tissue in a subject comprising:
providing a tissue graft having a peripheral surface and comprising an extracellular matrix patch and at least one fiber stitched into the patch in a reinforcement pattern to mitigate tearing of the graft, improve the fixation retention of the graft, and/or limit cyclic stretching of the graft and substantially maintain~~

~~these properties following partial enzymatic degradation of the graft while it remodels; and~~

~~securing a free end of the at least one fiber that extends beyond the peripheral surface of the tissue graft to the tissue in the subject.~~

23. The tissue graft of claim 1, wherein the at least one fiber is stitched in a reinforcing pattern to limit cyclic stretching of the graft.

24. The tissue graft of claim 23, wherein an ability of the at least one fibre to mitigate tearing of the graft, improve fixation retention of the graft and/or limit cyclic stretching of the graft is substantially maintained following partial enzymatic degradation of the graft while it remodels.

25. The method of claim 13, wherein the at least one fiber is stitched in a reinforcing pattern to limit cyclic stretching of the graft.

26. The method of claim 25, wherein an ability of the at least one fibre to mitigate tearing of the graft, improve fixation retention of the graft and/or limit cyclic stretching of the graft is substantially maintained following partial enzymatic degradation of the graft while it remodels.

27. A biocompatible tissue graft comprising:
a fascia lata patch having a peripheral surface; and
at least one fiber stitched into the patch in a reinforcing pattern to mitigate tearing of the graft, improve the fixation retention of the graft, and limit cyclic stretching of the graft, the at least one fiber having at least one free end extending beyond the peripheral surface of the patch for securing the patch to a host tissue;

wherein the at least one fiber comprises an ultra-high-molecular-weight polyethylene braid.