

Claims

1. A scaffold for vascular prosthesis of blood vessel comprising:
an inner tube made of elastomeric material; and
an outer mesh which surrounds the inner tube and which is made of a material of a higher stiffness than the elastomeric material of the inner tube,
wherein the outer mesh comprises
a plurality of coils wound around the inner tube, each of said coils being parallel to each other, and
at least one linking strand connecting two or more said coils to each other,
wherein each of said coils comprises one or more axially-oriented-kinks.
2. The scaffold as claimed in claim 1, wherein the elastomeric material of the inner tube comprises elastomeric copolymer, and wherein the elastomeric copolymer comprises poly-L-lactide-co-caprolactone (PLC), or bio-elastomeric poly-caprolactone-glycolide (PCG), or poly-caprolactone (PCL), or poly-L-lactide (PLLA), or poly-lactide (PLA), or polyurethane (PU), or thermoplastic polyurethane (TPU).
3. The scaffold as claimed in claim 2, wherein the PLC is with a lactide to caprolactone ratio ranging from 50:50 to 95:50.
4. The scaffold as claimed in claim 2, wherein the PCG is with a caprolactone to glycolide ratio ranging from 35:65 to 50:50.
5. The scaffold as claimed in any one of claims 1 to 4, wherein the at least one axially-oriented-kink has a profile comprising any one of a single bend profile, a double bend profile, or a step profile.
6. The scaffold as claimed in any one of claims 1 to 5, wherein the at least one linking strand is disposed in between two axially-oriented-kinks of respective one of said coils.
7. The scaffold as claimed in any one of claims 1 to 6, wherein the at least one linking strand comprises a bridge-link between two adjacent coils of said coils.

8. The scaffold as claimed in claim 7, wherein the bridge-link has a profile comprising any one of a straight profile, or a step profile, or a bend profile.
9. The scaffold as claimed in claim 7 or 8, wherein the outer mesh comprises multiple bridge links with at least one bridge-link between each successive pair of said coils, and wherein the multiple bridge links are in a staggered arrangement.
10. The scaffold as claimed in any one of claim 1 to 9, wherein the outer mesh is loosely abutting the inner tube.
11. The scaffold as claimed in any one of claim 1 to 9, wherein the at least one linking strand comprises an elongate stripe extending longitudinally across the plurality of coils so as to connect all of said coils together.
12. The scaffold as claimed in claim 11, wherein the elongate stripe comprises a wavy profile.
13. The scaffold as claimed in claim 11 or 12, wherein, when each of said coils comprises two axially-oriented-kinks, the elongate stripe is extending longitudinally across the plurality of coils between respective two axially-oriented-kinks of respective coil.
14. The scaffold as claimed in any one of claims 11 to 13, wherein the outer mesh is fixed to the inner tube along the elongate stripe via adhesive.
15. The scaffold as claimed in any one of claims 1 to 14, wherein each of said coils is a circumferential coil or a helical coil.
16. The scaffold as claimed in any one of claims 1 to 15, wherein the axially-oriented-kinks of axially adjacent ones of said coils axially engage with each other.
17. The scaffold as claimed in any one of claims 1 to 16, wherein the axially-oriented kinks of all coils are oriented in the same axial direction.

18. A method of fabricating a scaffold vascular prosthesis of blood vessel according to any one of claims 1 to 17, the method comprising:

providing an inner tube made of elastomeric material;

forming an outer mesh in a two-dimensional form, wherein the outer mesh is made of a material of a higher stiffness than the elastomeric material of the inner tube; and

arranging the outer mesh around the inner tube so as to surround the inner tube,

wherein the outer mesh comprises

a plurality of coils wound around the inner tube, each of said coils being parallel to each other, and

at least one linking strand connecting at least two of said coils to each other,

wherein each of said coils comprises one or more axially-oriented-kinks.

19. The method as claimed in claim 18, further comprising fixing the outer mesh to the inner tube along the at least one linking strand, wherein the at least one linking strand comprises an elongate stripe extending longitudinally across the plurality of coils.