Claims

What is claimed is:

1. A tissue reconstruction implant, the implant having a hydrophilic implant surface,
wherein the implant is a three-dimensional (3D) implant consisting of a bio-resorbable material, and
wherein the implant surface is considered hydrophilic when assessed using an ink test following ISO 8296:2003 and adapted to a three-dimensional (3D) surface,
wherein said ink test comprises incubating the implant for 1 min in a solution consisting of an ink with a surface tension of 72 mN/m and water, and wherein after incubation of the implant in said solution, an ink colored implant surface is indicative for a hydrophilic implant surface;
wherein the implant comprises a three-dimensional (3D) lattice structure, wherein the 3D lattice structure
   i) defines a resting volume of the implant,
   ii) has a bulk porosity of at least 50%, and
   iii) is a reversibly compressible 3D lattice structure, wherein the 3D lattice structure is compressible to at least 80% of its resting volume.

2. The implant of claim 1, wherein
   i) the bio-resorbable material comprises, or is, a polymer selected from the group consisting of polycaprolactone, poly(1,3-trimethylene carbonate), polylactide, polyglycolide, poly(ester amide), poly(ethylene glycol)/poly(butylene terephthalate), poly(4-hydroxybutyrate), polydiaxanone, poly(glycerol sebacate), poly(1,8-octanediol-co-citric acid), poly(1,10-decanediol-co-D,L-lactic acid), poly(diol citrate), poly(glycolide-co-caprolactone), poly(1,3-trimethylene carbonate-co-lactide), poly(1,3- trimethylene carbonate-co-caprolactone) and a copolymer of at least two of said polymers, or
   ii) the bio-resorbable material comprises polycaprolactone, and/or
   iii) the bio-resorbable material is capable of being resorbed by a patient, preferably within less than 15 years upon insertion of the implant into said patient.

3. The implant of claim 1 or 2, wherein
   i) the implant is an additively manufactured implant, preferably a three-dimensionally (3D) printed implant, and/or

ii) the filaments of the 3D printed implant have an average diameter between 25 µm and 7.5 mm, preferably between 50 µm and 5 mm or between 50 µm and 600 µm.

4. The implant of any one of the preceding claims, wherein the implant has a resting volume between 0.5 cm^3 and 40,000 cm^3, preferably between 5 cm^3 and 25,000 cm^3 or between 5 cm^3 and 3000 cm^3 or between 5 cm^3 and 800 cm^3.

5. The implant of any one of the preceding claims, wherein the porous network has an average pore size from 0.15 mm up to 12 mm or an average pore size from 0.5 mm up to 12 mm.

6. The implant of any one of the preceding claims, wherein the implant is
   i) a soft tissue implant and/or a soft tissue support implant,
   ii) for insertion into a patient, and/or
   iii) a single-piece reconstruction implant.

7. The implant of claim 6, wherein the soft tissue is a soft tissue of
   a) a breast region, pectoral region, malar region, gluteal region or genital region and/or
   b) a tendon and/or a ligament, preferably wherein the soft tissue is a soft tissue of a breast region, pectoral region, malar region or gluteal region, optionally wherein the implant is suitable for being folded and/or compressed such that it can be inserted into a patient minimal invasively.

8. The tissue reconstruction implant of any one of claims 1 to 7 for use in tissue reconstruction, (soft) tissue support, tissue augmentation and/or implant revision, wherein the implant is inserted into a patient.

9. Use of the tissue reconstruction implant of any one of claims 1 to 7 for reconstructing, augmenting and/or revising a tissue and/or supporting a (soft) tissue, wherein the implant is inserted into a patient.

10. A method of manufacturing a tissue reconstruction implant with a hydrophilic implant surface, comprising
    exposing a surface of an implant to a surface treatment, wherein the surface treatment is suitable for making the surface of the implant hydrophilic, whereby a hydrophilic implant surface is obtained,
    wherein the implant is a three-dimensional (3D) implant consisting of a bio-resorbable material, and

wherein the implant surface is considered hydrophilic when assessed using an ink test following ISO 8296:2003 and adapted to a three-dimensional (3D) surface,

wherein said ink test comprises incubating the implant for 1 min in a solution consisting of an ink with a surface tension of 72 mN/m and water, and wherein after incubation of the implant in said solution an ink colored implant surface is indicative for a hydrophilic implant surface;

wherein the implant is manufactured by sequentially printing layers to form a 3D printed lattice structure comprising a plurality of unit cells,

wherein the 3D printed lattice structure defines a resting volume of the implant, wherein a bulk porosity of the 3D lattice structure of the implant is at least 50%, wherein individual unit cells of the plurality of unit cells are reversibly compressible spring-like unit cells, wherein the 3D lattice structure is compressible to at least 80% of its resting volume.

11. The method of claim 10, wherein the implant is manufactured by sequentially printing layers to form a 3D printed lattice structure comprising a plurality of unit cells, wherein
    i) each printed layer comprises a lattice arrangement of 2D unit cells,
    ii) the unit cells are connected to each other, and/or
    iii) the filaments of the 3D printed lattice structure have an average diameter between 25 µm and 7.5 mm, preferably between 50 µm and 5 mm or between 50 µm and 600 µm.

12. The method of claim 10 or 11, wherein the surface treatment is i) an etching treatment, preferably an acid or alkaline etching treatment, more preferably a sodium hydroxide treatment, or ii) a plasma treatment, preferably an oxygen plasma treatment.

13. The method of any one of claims 10 to 12, wherein the plasma treatment
    i) is a low frequency plasma treatment, preferably at about 40 kHz,
    ii) is performed for at least 10 sec or at least 15 sec or at least 30 sec and/or for a period of time ranging between 10 sec and 240 min or between 15 sec and 240 min or between 15 sec and 90 min or between 15 sec and 60 min or between 15 sec and 30 min,
    iii) is performed by applying a used power of less than 70 watts (W) or of less than 40 W, and/or between 20 W and 70 W, preferably between 20 W and 40 W or between 50 W and 70 W,
    iv) is performed by applying a pressure of about 0.3 mbar, and/or

v) is performed by putting the implant on a glass tray in a plasma treatment device.

14. The method of any one of claims 10 to 13 or the implant of any one of claims 1 to 7, wherein the solution used in the ink test consists of the ink with the surface tension of 72 mN/m and distillate water, preferably in a ratio of ink:distillate water of between (about) 1:15 and (about) 1:75, more preferably in a ratio of ink:distillate water of (about) 1:60 or of (about) 1:30.

15. A kit comprising the tissue reconstruction implant according to any one of claims 1 to 7 and/or obtainable or obtained by the method according to any one of claims 10 to 14 comprised in a packaging, preferably a multiple layer packaging, wherein preferably at least one of the layers is a moisture barrier and/or comprises or consists of polyethylene lined with aluminum.