

CLAIMS

WHAT IS CLAIMED IS:

1. A dental implant abutment comprising an implant, an abutment and a shaped block comprising dried cross-linked collagen matrix, wherein said shaped block is positioned between the abutment and the implant as such that it is in direct contact at least partially with the implant and/or with the abutment.
2. A dental implant abutment for use in the stimulation of bone or soft tissue growth, wherein said dental implant abutment comprises an implant, an abutment and a shaped block comprising dried cross-linked collagen matrix; said shaped block is positioned between the abutment and the implant as such that it is in direct contact at least partially with the implant and/or with the abutment; the shaped block of the dental implant abutment is in partial and/or full contact with the bone and/or soft tissue surrounding the dental implant abutment; and the dental implant abutment of the invention provides space and environment for cell ingrowth.
3. The dental implant abutment of claim 1 or 2, wherein said shaped block further comprises hydroxyapatite.
4. The dental implant abutment of claim 1 or 2, wherein said shaped block further comprises titanium.
5. The dental implant abutment according to any one of claims 1-4, wherein said block has a shape of an O-ring-like, a sleeve-like or a tube-like.
6. The dental implant abutment according to any one of claims 1-5, wherein the shaped block further comprises a pharmaceutically active agent.
7. The dental implant abutment of claim 6, wherein said agent comprises antibacterial agents, antifungal agents, anti-inflammatory agents, antibiotic agents, vitamins or any combination thereof.
8. A method of preparing a shaped block of the dental implant abutment according to any one of claims 1-7, wherein the method comprises:
 - a. providing the dried cross-linked collagen matrix; and
 - b. carving out a shaped block from said dried matrix.

9. The method of claim 8, wherein the dried cross-linked collagen matrix is prepared by a method comprising:

- (i) providing an acidic solution of collagen, followed by neutralization the solution;
 - (ii) concentrating the solution of step (i);
 - (iii) lyophilizing the concentrated mixture of step (ii), thereby obtaining a dried collagen composition;
 - (iv) incubating the composition with a crosslinker and a first solvent;
 - (v) washing the incubated composition of step (iv) with a second solvent; and
 - (vi) lyophilizing the washed composition of step (v);
- thereby obtaining a dried cross-linked collagen matrix.

10. A method of preparing a shaped block of the dental implant abutment according to any one of claims 1-7, wherein the method comprises:

- (i) providing an acidic solution of collagen, followed by neutralization the solution;
 - (ii) concentrating the solution of step (i); and pouring it into a mold with a pre-designed block shape;
 - (iii) lyophilizing the concentrated mixture of step (ii), thereby obtaining a dried collagen composition, optionally comprising hydroxyapatite;
 - (iv) incubating the composition with a crosslinker, a first solvent and optionally with a pharmaceutically active agent;
 - (v) washing the incubated composition of step (iv) with a second solvent; and
 - (vi) lyophilizing the washed composition of step (v);
- thereby obtaining a shaped block of the dental implant abutment according to any one of claims 1-7.

11. A method of preparing a shaped block of the dental implant abutment according to any one of claims 1-7, wherein the method comprises:

- (i) providing an acidic solution of collagen and a crosslinker, followed by neutralization the solution;
- (ii) concentrating the solution of step (i); and pouring it into a mold with a pre designed block shape;
- (iii) lyophilizing the concentrated mixture of step (ii), thereby obtaining a dried collagen composition, optionally comprising hydroxyapatite;

- (iv) incubating the composition with the crosslinker, a first solvent and optionally with a pharmaceutically active agent;
 - (v) washing the incubated composition of step (iv) with a second solvent; and
 - (vi) lyophilizing the washed composition of step (v);
- thereby obtaining a shaped block of the dental implant abutment according to any one of claims 1-7.

12. A method of preparing a shaped block of the dental implant abutment according to any one of claims 1-7, wherein the method comprises:

- (i) providing an acidic solution of collagen, followed by neutralization the solution;
 - (ii) concentrating the solution of step (i); and pouring it into a mold with a pre designed block shape;
 - (iii) lyophilizing the concentrated mixture of step (ii), thereby obtaining a dried collagen composition, optionally comprising hydroxyapatite;
 - (iv) incubating the composition with a crosslinker and a first solvent;
 - (v) optionally adding a pharmaceutically active agent to the incubated composition of step (iv) and washing the resulting solution with a second solvent; and
 - (vi) lyophilizing the washed composition of step (v);
- thereby obtaining a shaped block of the dental implant abutment according to any one of claims 1-7.

13. The method according to any one of claims 8-12, wherein said obtained shaped block has a shape of an O-ring-like, a sleeve-like or a tube-like.

14. The method according to any one of claims 8-9, wherein said carving out is done by a CNC machine, a laser cutting machine, a waterjet cutter, a driller, an abrasive device OR by using casting molds or 3D printer during the manufacturing process.

15. The method according to claim 10-12 wherein said mold is shaped using a method comprising 3D printing, cast molding or any combination thereof.