CLAIMS

1. An injectable biomaterial comprising:

(a) a solid component; and

(b) a liquid component comprising a carbohydrate;

wherein the injectable biomaterial sets and cures to form an apatitic crystal structure after mixing of the solid component and the liquid component;

wherein the ratio of solid component to liquid component is between 1.5 to 1 by mass and 1 to 1 by mass; and

wherein the carbohydrate is sodium hyaluronate;

wherein the solid component comprises at least one of α-tricalcium phosphate ($Ca_3(PO_4)_2$), calcium carbonate ($CaCO_3$), and monocalcium phosphate monohydrate ($Ca(H_2PO_4)_2\ H_2O$).

2. A method for making the injectable biomaterial of claim 1, the method comprising:

(a) creating the liquid component by:

(i) providing a liquid solution;

(ii) adjusting the pH of the liquid solution with a pH adjusting agent; and

(iii) dissolving the carbohydrate in the liquid solution to form the liquid component;

(b) providing the solid component; and

(c) mixing the liquid component and the solid component to form the injectable biomaterial.

3. The injectable biomaterial or method of any preceding claim, wherein the solid component comprises α-tricalcium phosphate and calcium carbonate.

4. The injectable biomaterial or method of any preceding claim, wherein the solid component comprises α-tricalcium phosphate, calcium carbonate, and monocalcium phosphate monohydrate.

5. The injectable biomaterial or method of any preceding claim, wherein the ratio of solid component to liquid component is 1 to 1 by mass.

6. The injectable biomaterial or method of any preceding claim, wherein the fully set and cured injectable biomaterial has a molar Ca/P ratio of 1 to 2.

7. The injectable biomaterial of any one of claims 1-6 for use in therapy.

8. The injectable biomaterial of any one of claims 1-6 for use in the treatment of an affected area of degenerate bone in a patient in need thereof.

9. Use of the injectable biomaterial of any one of claims 1-6 in the preparation of a medicament for the treatment of an affected area of degenerate bone in a patient in need thereof.

10. Use of a volume of an injectable biomaterial of any one of claims 1-6 in the preparation of a medicament for treating an affected area of degenerate bone in a patient in need thereof, wherein:

a) the affected area in the degenerate bone of the patient is to be identified;

b) an incision is to be created in the degenerate bone through a cortical wall of the degenerate bone to provide access to a degenerate cancellous space in the affected area of the degenerate bone; and

c) the volume of the injectable biomaterial is to be administered through the incision through the cortical wall of the degenerate bone and into the degenerate cancellous space.

11. The injectable biomaterial for use of any one of claims 7 or 8, or the use of any one of claims 9 or 10, wherein the treatment is of osteoarthritis in a joint of the patient.

12. The use of any one of claims 10 or 11, wherein the access to the cancellous space is to be provided by a channel created in the bone of the patient to couple the incision in the cortical wall of the bone to the cancellous space comprising the affected area.

13. The use of any one of claims 10-12, wherein the contents of the affected area are to be decompressed and aspirated prior to administration of the injectable biomaterial to the affected area.

14. The use of claim 13, wherein the contents comprise a fluid comprising at least one of inflammatory mediators and non-inflammatory mediators.

15. The injectable biomaterial for use of claim 8, wherein the injectable biomaterial is to be injected into the affected area in the degenerate bone while minimally disrupting the subchondral plate.

16. The injectable biomaterial for use of claim 8, wherein the injectable biomaterial is to flow into the porosity of cancellous bone during administration into the affected area in the degenerate bone.

17. The injectable biomaterial for use of claim 8, wherein the injectable biomaterial is to remain cohesive and is to substantially fill bone voids during administration into the affected area in the degenerate bone.

18. The use of claim 9, wherein the injectable biomaterial is to be injected into the affected area in the degenerate bone while minimally disrupting the subchondral plate.

19. The use of claim 9, wherein the injectable biomaterial is to flow into the porosity of cancellous bone during administration into the affected area in the degenerate bone.

20. The use of claim 9, wherein the injectable biomaterial is to remain cohesive and is to substantially fill bone voids during administration into the affected area in the degenerate bone.

21. The injectable biomaterial, method, or use of any preceding claim, wherein the solid component comprises 70-90% α-tricalcium phosphate, 10-20% calcium carbonate, and 0.5-2% calcium phosphate monobasic monohydrate (mass/mass).

2221. A kit comprising:

(a) the solid component and the liquid component for preparing the injectable biomaterial of any one of claims 1-6; and

(b) instructions for use of the same.

wherein the solid component is disposed in a syringe possessing an integrated mixing device for *in situ* mixing of premeasured portions of the solid component and the liquid component to form the injectable biomaterial, and

wherein the solid component comprises 70-90% α-tricalcium phosphate, 10-20% calcium carbonate, and 0.5-2% calcium phosphate monobasic monohydrate (mass/mass).

~~22. The kit of claim 21, wherein the solid component is disposed in a syringe possessing an integrated mixing device for *in situ* mixing of premeasured portions of the solid component and the liquid component to form the injectable biomaterial.~~

~~23. The injectable biomaterial, method, use, or kitof any preceding claim, wherein the solid component comprises 70-90% α-tricalcium phosphate, 10-20% calcium carbonate, and 0.5-2% calcium phosphate monobasic monohydrate (mass/mass).~~

~~24~~23. The injectable biomaterial, method, or use of claim 21, or kit of claim 22~~23~~, wherein the solid component comprises 80-89% α-tricalcium phosphate, 11-19% calcium carbonate, and 0.75-1.5% calcium phosphate monobasic monohydrate (mass/mass).

~~25~~24. The injectable biomaterial, method, use, or kit of claim ~~24~~23, wherein the solid component comprises 82-86% α-tricalcium phosphate, 13-16% calcium carbonate, and 0.9-1.2% calcium phosphate monobasic monohydrate (mass/mass).

~~26~~25. The injectable biomaterial, method, use, or kit of claim ~~25~~24, wherein the solid component comprises 84.3% α-tricalcium phosphate, 14.7% calcium carbonate, and 1.02% calcium phosphate monobasic monohydrate (mass/mass).