



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US99/01677 (22) International Filing Date: 27 January 1999 (27.01.99) (30) Priority Data: 09/014,519 28 January 1998 (28.01.98) US 09/154,400 16 September 1998 (16.09.98) US (71) Applicants (for all designated States except US): REGENERATION TECHNOLOGIES, INC. [US/US]; 1 Innovation Drive, Alachua, FL 32615 (US). UNIVERSITY OF FLORIDA TISSUE BANK, INC. [US/US]; 1 Innovation Drive, Alachua, FL 32615 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): WIRONEN, John, F. [US/US]; 1 Innovation Drive, Alachua, FL 32615 (US). FELTON, Phillip, A. [US/US]; 1 Innovation Drive, Alachua, FL 32615 (US). JAW, Rebecca [US/US]; 1 Innovation Drive, Alachua, FL 32615 (US). (74) Agent: BENCEN, Gerard, H.; Gerard H. Bencen, P.A., 426 Anderson Court, Orlando, FL 32801 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 23 September 1999 (23.09.99)
(54) Title: BONE PASTE SUBJECTED TO IRRADIATIVE AND THERMAL TREATMENT		
(57) Abstract A thermally sterilized bone paste useful in the orthopedic arts, for example in the repair of non-union fractures, periodontal ridge augmentation, craniofacial surgery, implant fixation, impaction grafting, or any other procedure in which generation of new bone is deemed necessary, is provided by a composition comprising a substantially bioabsorbable osteogenic compound in a matrix of 11-19 %, and preferably about 15-19 % (w/w) or thermally sterilized gelatin. In various embodiments, the osteogenic compound is selected from (i) demineralized bone matrix (DBM); (ii) bioactive glass ceramic, BIOGLASS®, bioactive ceramic, calcium phosphate ceramic, hydroxyapatite, hydroxyapatite carbonate, coralline hydroxyapatite, calcined bone, tricalcium phosphate, or like material; (iii) bone marrow extracts, vascular proliferation or regeneration growth factors, bone morphogenetic protein, TGF- β , PDGF, or mixtures thereof, natural or recombinant; and (iv) mixtures of (i)-(iii). The thermally sterilised gelatine may be a commercially available grade of gelatine which is both thermally and irradiatively sterilized.		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/01677

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61L27/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 98 40113 A (GROOMS JAMIE M ;WIRONEN JOHN F (US); UNIV FLORIDA RES FOUND (US);) 17 September 1998 (1998-09-17) cited in the application the whole document ---	1-49
X	US 4 191 747 A (SCHEICHER HANS) 4 March 1980 (1980-03-04) column 5, line 3 - column 6, line 17 ---	1-49
X	WO 96 39203 A (BIOCOLL LAB INC) 12 December 1996 (1996-12-12) page 20, line 5 - line 20; claims ---	1-17
X	EP 0 530 804 A (SHAW ROBERT F) 10 March 1993 (1993-03-10) claims; examples ---	1-17
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search

27 July 1999

Date of mailing of the international search report

05/08/1999

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 329 239 A (FORESTI GIANCARLO) 23 August 1989 (1989-08-23) claims ---	1-17
X	DATABASE WPI Section Ch, Week 8911 Derwent Publications Ltd., London, GB; Class D22, AN 89-080728 XP002110466 & JP 01 032371 A (NITTA GELATIN KK), 3 February 1989 (1989-02-03) abstract ---	1,2
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A	DATABASE WPI Section Ch, Week 9325 Derwent Publications Ltd., London, GB; Class A96, AN 93-199779 XP002110468 & JP 05 123390 A (KYOCERA CORP), 21 May 1993 (1993-05-21) abstract ---	1
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Section Ch, Week 8835 Derwent Publications Ltd., London, GB; Class D22, AN 88-247568 XP002110470 & JP 63 181770 A (NAGASE M), 26 July 1988 (1988-07-26) abstract -----	1

INTERNATIONAL SEARCH REPORT

International application No.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claim(s) 30-32 is(are) directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

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