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[Continued on next page]

(54) Title: CARTILAGE GRAFTS

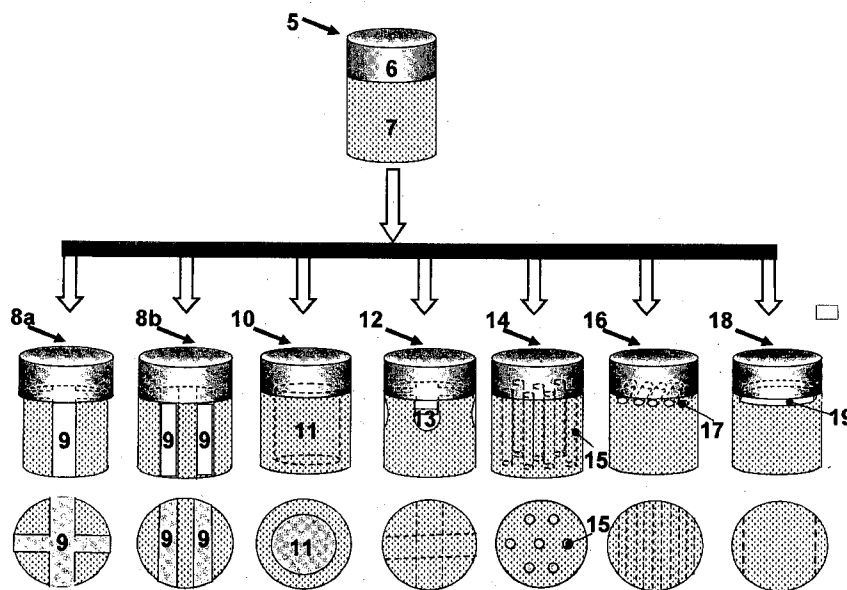


Fig. 2

(57) Abstract: The present invention is directed to crafting of cartilage to facilitate disinfection, cleaning, devitalization, recellularization, and integration after implantation. The present invention also is directed to cleaning and devitalization of cartilage. Moreover, the present invention provides processes for recellularization of cartilage and implantation of cartilage.

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NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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5 March 2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/08643

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 2/02; C12N 5/08 (2008.04)

USPC - 623/23.72, 435/379

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)
USPC 623/23.72, 435/379

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
All USPC; USPC 623/23.72, 623/11.11, 435/379, 435/378, 435/325; IPC A61F 2/02; C12N 5/08

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST(USPT,PGPB,EPAB,JPAB); Google: @PD<20070716; cartilage; matrix; human; animal; condyle; plateau; hemicondyle; hemiplateau; femoral head; phalange; talus; tibia; fibula; rib; intervertebral disc; menisc\$; nose; ear; osteochondral plug; cap; subchondral bone; gap; channel; slot; perforat\$


C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0067582 A1 (Wolfenbarger, Jr. et al.) 8 April 2004 (08.04.2004); para [0002], [0005]-[0006], [0008], [0011]-[0012], [0014]-[0016], [0044]	1, 2, 21-23
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Y		5-20
Y	US 2004/0230303 A1 (Gomes, et al.) 18 November 2004 (18.11.2004); Abstract; para [0004], [0011], [0032]-[0038], [0045]-[0051], [0053], [0057]-[0058]; Fig 3-9	5-18
Y	US 2005/0251268 A1 (Truncala) 10 November 2005 (10.11.2005); Abstract; para [0050]	6, 14
Y	US 2005/0209705 A1 (Niederauer, et al.) 22 September 2005 (22.09.2005); Abstract; para [0044]; Fig 4A	8, 16
Y	US 2004/0059364 A1 (Gaskins, et al.) 25 March 2004 (25.03.2004); Abstract; para [0004], [0049], [0056], [0061]	19, 20
Y	US 6,416,995 B1 (Wolfenbarger) 9 July 2002 (09.07.2002) Abstract; col 4, ln 10-25; col 13, ln 27 to col 14, ln 56	13

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 8 December 2005 (08.12.2005)	Date of mailing of the international search report 31 DEC 2008
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/08643

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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:
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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows: This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

- Group I Claims 1, 2, 5-23 are directed to a shaped cartilage matrix isolated from a human or animal.
Group II claims 1, 3, 4, 24, 27, 28, are directed to a process for repairing a cartilage defect and implanting a cartilage graft into a human or animal.
Group III claims 25, 26, are directed to a process for cleaning and disinfecting a cartilage graft.
Group IV claims 29-42, are directed to a process for preparing a devitalized cartilage graft.

--please see additional sheet -

- 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 additional fees, this Authority did not invite payment of additional fees.
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. [X] 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.: 1, 2, 5-23

Remark on Protest

- [] The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
[] The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
[] No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/US 08/08643

Continued from Box III:

Group V claims 43-49, 58-66 are directed to process of recellularizing a devitalized cartilage graft with viable cells in vitro to render the tissue vital.

Group VI claims 50-57 are directed to a process of recellularizing a devitalized cartilage graft with viable cells in situ and process of recellularizing a devitalized cartilage graft with viable cells in situ to render the tissue vital.

Group VII claims 67-91 are directed to a process for implanting a cartilage graft into a cartilage defect and sealing the implanted cartilage graft with the recipient tissue.

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The shared technical feature of groups I-VII is a devitalized cartilage graft or matrix. However, this is not an improvement over the prior art of US 2004/0067582 A1 to Wolfenbarger, Jr. et al. (08.04.2004) that teaches a devitalized cartilage graft or matrix (abstract, para [0002], [0005]).