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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii))

Published:

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(54) Title: METHODS FOR PRESERVING TARGET CELLS

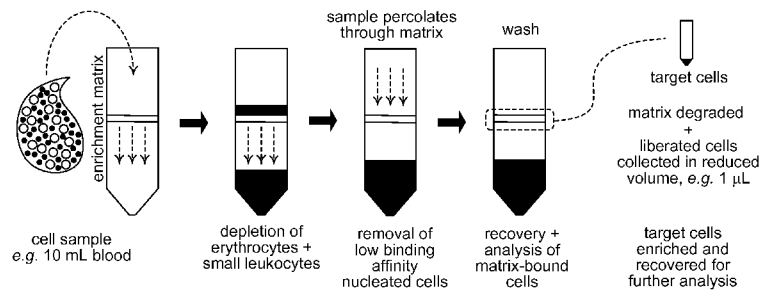
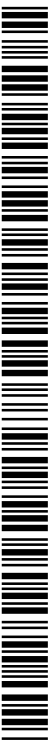


FIG. 1B

- (57) Abstract: Methods for obtaining and preserving target cells using degradable three dimensional matrices are described.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 11/60990

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - C12N 1/02, 1/04 (2012.01)
USPC - 435/174, 325, 274
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: 435/174, 325, 274

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 435/174, 325, 274 (text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Electronic data bases: PubWEST (USPT, EPAB, JPAB, PGPB); Google Scholar
Search terms: cryopreservation, matrix, collagen, gelatin, alginate, hyaluronic acid, PLA/PGA or PLGA or polylactide, trap or retain, cells in fluid, blood, bone marrow

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2010/0239671 A1 (EDELMAN et al.) 23 September 2010 (23.09.2010). Especially para [0042], [0043], [0045], [0062], [0064], [0073], [0084].	1, 4, 5, 7-9 ----- 2, 3, 6
Y	WO 2007/129828 A1 (KIM et al.) 15 November 2007 (15.11.2007). Especially abstract; para [15], [26], [56], [57].	2, 3, 6

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"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 9 May 2012 (09.05.2012)	Date of mailing of the international search report 25 MAY 2012
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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 11/60990

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.: 10-16, 23, 24, 27, 28, 37 and 38
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 1-9, directed to a method for preserving target cells from a fluid, cell-containing sample, said method comprising: a) providing said fluid, cell-containing sample; b) passing said sample through a degradable, three-dimensional matrix, wherein said matrix has a porosity that retains target cells; and c) cryopreserving said matrix and target cells retained by said matrix.

Group II: claims 17-22, 25, 26, directed to a method for preserving target cells from a fluid, cell-containing sample, said method comprising: a) providing said fluid, cell-containing sample; b) passing said sample through a degradable, three-dimensional matrix, wherein said matrix comprises a capture ligand attached thereto, said capture ligand having affinity for a target cell in said sample; and c) cryopreserving said matrix and target cells retained by the matrix.

-----See Extra Sheet for continuation-----

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. 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.:
Claims 1-9

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.

Continuation of Box III (Lack of Unity of Invention)

Group III: claims 29-36, directed to a method for preserving target cells from a fluid, cell-containing sample, said method comprising: a) providing a fluid, cell-containing sample from a subject; b) passing said sample through a three-dimensional matrix, said matrix comprising an inner core and an outer layer disposed around said inner core, said inner core comprising a non-degradable substrate, said outer layer composed of a degradable polymer and having a porosity that retains target cells; and c) cryopreserving said matrix and target cells retained by said matrix; the method may further comprise degrading the matrix and recovering the cells prior to cryopreservation.

The inventions listed as Groups I - III 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 special technical feature of the claims of Groups I-III are provided above in the Group descriptions. The common technical elements shared by the above groups is that they are related to a method for preserving target cells from a fluid, cell-containing sample, said method comprising: a) providing said fluid, cell-containing sample; b) passing said sample through a degradable, three-dimensional matrix, wherein said matrix has a porosity that retains target cells; and c) cryopreserving said matrix and target cells retained by said matrix. These common technical elements do not represent an improvement over the prior art of US 2010/0239671 A1 to Edelman et al. teaches a method (method for treating a subject, comprising the step of providing to the subject a therapeutic composition comprising a biocompatible matrix and cells in an amount sufficient to treat an injury; para [0011]) for preserving (cryopreserved; para [0043]) target cells (suitable cells can be obtained from a variety of tissue types and cell types. In certain preferred embodiments, cells used in the implantable material are isolated from cadaver donors; para [0043]) from a fluid, cell-containing sample (endothelial cells (0.9.times.10.sup.5) and/or epithelial cells (2.times.10.sup.5) are then concentrated to 100 .mu.l; [para [0073]), said method comprising: a) providing said fluid, cell-containing sample (endothelial cells (0.9.times.10.sup.5) and/or epithelial cells (2.times.10.sup.5) are then concentrated to 100 .mu.l; para [0073]); b) passing said sample (epithelial cells (2.times.10.sup.5) are then concentrated to 100 .mu.l and added to the surface of the matrices; para [0073]) through a degradable (matrix implants degrade; para [0100]), three-dimensional matrix (absorbable gelatin sponge (hereinafter "Gelfoam matrix"; para [0062]), wherein said matrix has a porosity (para [0062]) that retains target cells (matrix embedded cells; para [0074]); and c) cryopreserving said matrix and target cells retained by said matrix (para [0084]).

Therefore, the inventions of Groups I-III lack unity of invention under PCT Rule 13 because they do not share a same or corresponding special technical feature.