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14 February 2008

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Previous Correction:
see Notice of 25 October 2007



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(54) **Title:** METHOD FOR ENDOTHELIAL CELL EXTRACTION FROM ADIPOSE TISSUES

(57) **Abstract:** Adipose tissue has proven to serve as an abundant, accessible, and rich source of endothelial or vascular endothelial cells suitable for tissue engineering. We describe a detailed method for the isolation and purification of endothelial cells using purified enzymes and antibody-based selection. The cells can be obtained from liposuction procedures and used in vascular grafts.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 07/05706

A CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C 12N 5/02; C 12N 5/00; C 12N 5/08 (2007.10)
 USPC - 435/366, 435/325

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- 435/366, 435/325

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPC- 435/366, 363, 325 (text search)

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

PubWEST (USPT, PGPB, EPAB, JPAB) and Google Patent/Scholar

Search terms vascular graft, endothelial cell, liposuction, CD34, CD31, CD14, adipose, dispase, collagenase, liberase, prosthetic

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	US 2005/0008626 A 1 (Fraser et al) 13 January 2005 (13 01 2005) para [0031], [0054], [0061], [0064], [0068], [0071], [0073] and [0074]	1-24
Y	US 2006/003481 3 A 1 (Herder et al) 16 February 2006 (16 02 2006) para [0003], [0034], [0047] and [0048]	1-24
Y	US 5,131,907 A (Williams et al) 21 July 1992 (21 07 1992) col 9, ln 7-22 and col 12, ln 54-64,	2-5 and 19-24
Y	US 5,952,215 A (Dwulet et al) 14 September 1999 (14 09 1999) col 2, ln 13-26	8
Y	US 5,576,278 A (Van Duzee et al) 19 November 1996 (19 11 1996) col 5, ln 1-5	9
Y	US 2002/0039787 A 1 (Rogers et al) 04 April 2002 (04 04 2002) para [0013], [0014], [0043], [0124] and [0128]	10-18
Y	US 2003/0228290 A 1 (Sefton et al) 11 December 2003 (11 12 2003) para [0008]	18

D 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

15 November 2007 (15 11 2007)

Date of mailing of the international search report

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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 **I** Claims Nos
because they relate to subject matter not required to be searched by this Authority, namely
- 2 **D** 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 **D** 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)

Bis International Searching Authority found multiple inventions in this international application, as follows
Group I - Claims 1-9 are directed at a method of preparing endothelial cells from adipose tissue
Group II - Claims 10-24 are directed at a method for assaying endothelial cell preparations for suitability for seeding in vascular grafts

The inventions listed as Groups I and II 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 feature for the following reasons

According to PCT Rule 13 2, unity of invention exists only when the same or corresponding technical feature is shared by all claimed inventions. Each group has a different special technical feature not shared with the other group. Group I is directed at a method of preparing endothelial cells from adipose tissue. Hue et al teaches a method for harvesting adipose tissue containing autologous microvascular endothelial cells (US 5,744,360 A to Hue et al 28 April 1998 (28 04 1998)). The method claimed in Group I is not a contribution over the prior art, nor does it share a special technical feature of Group II which is directed at a method of assaying endothelial cells.

In order for all inventions to be examined, the appropriate additional examination fees must be paid

- 1 **I/*J** 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 **J** 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 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