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26 July 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TRANSPLANTABLE CELL GROWTH NICHE AND RELATED COMPOSITIONS AND METHODS

(57) Abstract: Provided is a method of culturing a successor cell from a precursor cell comprising co-culturing a precursor cell such as, without limitation, a human embryonic stem cell or a neuronal stem cell with an adult mesenchymal stem cell, hi one embodiment, the adult mesenchymal stem cell is derived from adipose tissue. Also provided is a composition comprising mesenchymal stem cells in a growth matrix biologically-compatible with the cells. In another embodiment, a method of regenerating tissue is provided comprising introducing into a patient a cell growth niche comprising either or both of mesenchymal stem cells and neuronal stem cell or successor cell in a growth matrix biologically-compatible with the cells. In another embodiment, a method of regenerating tissue is provided comprising introducing into a patient a cell growth niche comprising matrix, cells and slow release polymer beads containing growth factors.



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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US06/34596

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: A01N 1/00( 2006.01);C12N 5/02( 2006.01),5/06( 2006.01),5/08( 2006.01)

USPC: 435/1.1,347,368,373,377,382,397

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)  
U.S. : 435/1.1,347,368,373,377,382,397

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 practicable, search terms used)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US Patent App. Pub. No. 2003/0152558 (Luft et al) 14 August 2003 (14.08.2003), paragraphs 0010-0027.	1-3 and 23-26
X	US Patent App. Pub. No. 2002/0076400 (Katz et al) 20 June 2002 (20.06.2002), paragraphs 0010-0027.	1-19, 21-42, 44-64 and 66-72
Y	US Patent App. Pub. No. 2004/0253718 (Marko) 16 December 2004(16.12.2004), paragraphs 0061.	16, 20 and 43
Y	US Patent App. Pub. No. 2002/0182241 (Borenstein) 5 December 2002 (5.12.2002), paragraph 0149.	16, 20 and 43
A	Silani V, Cova L, Corbo M, Ciammola A, Polli E. Stem-cell therapy for amyotrophic lateral sclerosis. Lancet. July 2004, Vol 364. No. 9429, pages 200-2.	73-79

Further documents are listed in the continuation of Box C.  See patent family annex.

* 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 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 11 May 2007 (11.05.2007)	Date of mailing of the international search report <b>05 JUN 2007</b>
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 <i>Laura McGillem</i> Laura McGillem Telephone No. 571-272-8783

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US06/34596

Continuation of B. FIELDS SEARCHED Item 3:  
EAST USPGPub, USPAT, USOCR, EPO, JPO, DERWENT  
Dialog Biosciences database, STIC Search of SEQ ID NOs: 1-3  
Search terms mesenchymal stem cells adipose tissue growth matrix, hydrogel

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/34596

## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

a sequence listing

table(s) related to the sequence listing

b. format of material

on paper

in electronic form

c. time of filing/furnishing

contained in the international application as filed

filed together with the international application in electronic form

furnished subsequently to this Authority for the purposes of search

2.

In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments: