(19) World Intellectual Property Organization

International Bureau





(10) International Publication Number

(43) International Publication Date 4 January 2007 (04.01.2007)

(51) International Patent Classification: C12N 5/08 (2006.01) C12N 5/06 (2006.01)

(21) International Application Number:

PCT/US2006/024168

(22) International Filing Date: 20 June 2006 (20.06.2006)

(25) Filing Language: **English**

English (26) Publication Language:

(30) Priority Data:

60/692,186 20 June 2005 (20.06.2005)

- (71) Applicants (for all designated States except US): BRE-SAGEN, INC. [US/US]; 111 River Bend Road, Athens, Georgia 30605 (US). UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC. [US/US]; 627a Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411 (US). CYTHERA, INC. [US/US]; 3550 General Atomics Court, San Diego, California 92121 (US). ROBARTS RESEARCH INSTITUTE [CA/CA]; 100 Perth Drive, London, Ontario N6A 5K8 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): ROBINS, Allan, J. [AU/US]; 1050 Coday Bluff, Athens, Georgia 30606 (US). SCHULZ, Thomas, C. [AU/US]; 162 Oak Meadow Drive, Athens, Georgia 30605 (US). DALTON, Stephen [AU/US]; 1030 Coday Bluff, Athens, Georgia 30606 (US). BAETGE, E., Edward [US/US]; 308 Sunset Drive, Encinitas, California 92024 (US). CARPENTER, Melissa [US/US]; 10330 Wateridge Circle, #290, San Diego, California 92121 (US).

WO 2007/002210 A3 (74) Agents: WARREN, William, L. et al.; Sutherland Asbill & Brennan LLP, 999 Peachtree Street, NE, Atlanta, Geor-

gia 30309-3996 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

(88) Date of publication of the international search report: 5 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: EMBRYONIC STEM CELL CULTURE COMPOSITIONS AND METHODS OF USE THEREOF

(57) Abstract: The present invention provides compositions and methods for the culture and maintenance of undifferentiated, pluripotent mammalian stem cells. More particularly, the present invention provides a defined media useful in the absence of a feeder layer and in the absence of serum or serum replacement, that comprises an activator of IGF-IR, an activator of an FGF receptor, serum albumin, transferrin, and optionally, a member of the TGF- β family.



INTERNATIONAL SEARCH REPORT

International application No. PCT/US 06/24168

A. CLASSIFICATION OF SUBJECT MATTER IPC(8): C12N 5/00, 5/06 (2007.01)			
USPC: 435/383 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: 435/325, 366, 383, 384, 405			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched http://scholar.google.com Keyword= cell culture and LongR IGF			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST: DB=PGPB,USPT,USOC,EPAB,JPAB, terms= medium or media and IGF and transferrin and TGF			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category* Citation of document, with indication, where	appropriate, of the relevant passages	Relevant to claim No.	
US 2005/0037492 A1 (XU, C., et al) 17 Feb 2005 (17.02.2005), abstract, [0013], [0035], [0043], [0055], [0072], [0073], [0074], [0075], [0099], [0104], [0114], [0145].		1-7, 9-17, 19-30, 32-44, 46-88	
Y		8, 18, 31, 45	
Y US 2002/0160455 A1 (MORRIS, A. E., et al) 31 Octo	ber 2002 (31.10.2002), para [0058]	8, 18, 31, 45	
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 'E" earlier application or patent but published on or after the international "T" later document published after the international date or prior date and not in conflict with the application but cited to understate the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot		ation but cited to understand nvention	
filing date "I" document which may throw doubts on priority claim(s) or which	is step when the document is taken alone	ered to involve an inventive	
cited to establish the publication date of another citation or oth special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or oth	considered to involve an inventive	step when the document is documents, such combination	
"P" document published prior to the international filing date but later the the priority date claimed			
Date of the actual completion of the international search	Date of mailing of the international search report		
26 Feb 2007 (26.02.2007)	18 APR 2007		
Name and mailing address of the ISA/US	Authorized officer:	-	
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774		