## ${\bf (19)}\ World\ Intellectual\ Property\ Organization$

International Bureau





PCT

## (43) International Publication Date 12 July 2007 (12.07.2007)

(51) International Patent Classification: *C12M 1/42* (2006.01)

(21) International Application Number:

PCT/US2006/044394

(22) International Filing Date:

14 November 2006 (14.11.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/315,475

22 December 2005 (22.12.2005) US

- (71) Applicant (for all designated States except US): CORNELL RESEARCH FOUNDATION, INC. [US/US]; CORNELL BUSINESS & TECHNOLOGY PARK, 20 Thornwood Drive, Suite 105, Ithaca, NY 14850 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): PALERMO, Gianpiero, D. [US/US]; 308 East 72nd Street, New York, NY 10021 (US).
- (74) Agents: GOLDMAN, Michael, L. et al.; NIXON PEABODY LLP, Clinton Square, P.O.Box 31051, Rochester, NY 14603-1051 (US).

- (10) International Publication Number WO 2007/078439 A3
- (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, GT, 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, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, 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: 30 April 2009



**A** 3

(54) Title: ELECTROFUSION MICROELECTRODE AND METHODS OF USING IT TO MANIPULATE CELLS AND/OR CELLULAR COMPONENTS

(57) Abstract: The present invention relates to an electrofusion microelectrode made of a tube having a first proximal end and a second distal end. The tube has an electrically conductive coating on its exterior surface that extends continually from the first proximal end of the tube toward the second distal end of the tube. Also disclosed is an electrofusion microelectrode unit having an electrofusion microelectrode and a holding tool capable of receiving the electrofusion microelectrode at the second distal end of the tube. The present invention also relates to a system having two or more electrofusion microelectrodes of the present invention and to methods of manipulating cells and/or cellular components using the electrofusion microelectrodes, units, and systems of the present invention.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/44394

A. CLAS IPC(8):	SSIFICATION OF SUBJECT MATTER C12M 1/42( 2006.01)		
USPC: 435/285.2 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. : 435/285.2			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) BRS, MEDLINE			
C. DOC	UMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where a	ppropriate, of the relevant passages	Relevant to claim No.
Х	US 4,371,273 (KENDALL et al.) 01 February 1983 ( Figures 1-9.	(01.02.1983), column 6, lines 36-50, and	1,4,6-10,12,14 and 15
	documents are listed in the continuation of Box C.	See patent family annex.	
"A" document defining the general state of the art which is not considered to be of particular relevance		date and not in conflict with the application but cited to understand the	
		principle or theory underlying the invent	
"E" earlier app	plication or patent published on or after the international filing date	"X" document of particular relevance; the cle considered novel or cannot be considered when the document is taken alone	
	which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as	"Y" document of particular relevance; the cle considered to involve an inventive step with one or more other such documents.	when the document is combined
"O" document	referring to an oral disclosure, use, exhibition or other means	obvious to a person skilled in the art	_
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family	
Date of the actual completion of the international search Date		Date of mailing of the international search	report
	008 (30.01.2008)	Authorized - 65 of	19
Name and mailing address of the ISA/US  Mail Stop PCT, Attn: ISA/US		Authorized officer	
Commissioner for Patents		James S. Ketter	
Alexandria, Virginia 22313-1450		Telephone No. 571-272-1600	700
Facsimile No. (571) 273-3201			

Form PCT/ISA/210 (second sheet) (April 2005)