(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 September 2004 (23.09.2004)

PCT

(10) International Publication Number
WO 2004/081205 A1

(51) International Patent Classification[7]: C12N 5/08, 5/10

(21) International Application Number:
PCT/AU2004/000302

(22) International Filing Date: 11 March 2004 (11.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003901099 11 March 2003 (11.03.2003) AU

(71) Applicants *(for all designated States except US)*: **ES CELL INTERNATIONAL PTE LTD** [SG/SG]; 41 Science Park Road, #04-14/15 The Gemini, Singapore Science Park II, Singapore 117610 (SG). **NETHERLANDS INSTITUTE VOOR ONTWIKKELINGSBIOLOGIE** [NL/NL]; Upsalalaan 8, NL-3584 CT Utrecht (NL).

(71) Applicant *(for MG only)*: **IP ORGANISERS PTY LTD** [AU/AU]; Level 21, 367 Collins Street, Melbourne, Victoria 3000 (AU).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **MUMMERY, Christine, Lindsay** [GB/NL]; Hasebroeklaan 43, NL-3723 DJ Bilthoven (NL). **DOEVENDANS, Petrus, Adrianus, Frederik, Maria** [NL/NL]; Nieuwe Gracht 22A, NL-3512 LR Utrecht (NL). **TERTOOLEN, Leon, Gerardus, Joseph** [NL/NL]; Eerste Spechtstraat 9, NL-3524 TV Utrecht (NL).

(74) Agent: **PHILLIPS ORMONDE & FITZPATRICK**; 367 Collins Street, Melbourne, Victoria 3000 (AU).

(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, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, 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, IT, LU, 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*

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: DIFFERENTIATION OF HUMAN EMBRYONIC STEM CELLS TO CARDIOMYOCYTES

(57) Abstract: A method for inducing cardiomyocyte differentiation of a hES cell, the method comprising co-culturing the hES cell with a cell excreting at least one cardiomyocyte differentiation inducing factor or with an extracellular medium therefrom, under conditions that induce differentiation, cells and cell populations so produced, and uses of the cells.

WO 2004/081205 A1