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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 May 2003 (15.05.2003)

PCT

(10) International Publication Number
WO 2003/040346 A3

(51) International Patent Classification[7]: C12N 5/02, A01N 63/00

(21) International Application Number: PCT/US2002/036317

(22) International Filing Date: 12 November 2002 (12.11.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/344,555 9 November 2001 (09.11.2001) US

(71) Applicant *(for all designated States except US)*: **ARTECEL SCIENCES, INC.** [US/US]; 905 West Main Street, Box 44, Suite 25-B, Durham, NC 27701 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LUFT, Christopher** [US/US]; 12 Great Oak Court, Durham, NC 27713 (US). **WILKISON, William, O.** [US/US]; 9706 Gallop Lane, Dahama, NC 27503 (US). **CHEATHAM, Bentley** [US/US]; 4800 University Dr, Durham NC 27707 (US). **GIMBLE, Jeffrey, M.** [US/US]; 16 Glenmore Road, Chapel Hill, NC 27516 (US). **HALVORSEN, Yuan-Di, C.** [US/US]; 5128 Salem Ridge Rd, Holly Springs, NC 27540 (US).

(74) Agent: **KNOWLES, Sherry, M.**; King & Spalding, 191 Peachtree St., Atlanta, GA 30303-1763 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, 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, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (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: 26 February 2004

*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: METHODS AND COMPOSITIONS FOR THE USE OF STROMAL CELLS TO SUPPORT EMBRYONIC AND ADULT STEM CELLS

(57) Abstract: The invention provides cells, compositions and methods based on the use of stromal cells to support the proliferation of undifferentiated embryonic or adult stem cells in vitro. The stem cells produced in the method are useful in providing a source of uncommitted or differentiated and functional cells for research, transplantation and development of tissue engineered products for the treatment of human diseases and traumatic tissue injury repair in any tissue or organ site within the body.

WO 2003/040346 A3