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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 March 2003 (20.03.2003)

PCT

(10) International Publication Number
WO 03/022988 A3

(51) International Patent Classification[7]: C12N 5/00

(21) International Application Number: PCT/US02/24374

(22) International Filing Date: 31 July 2002 (31.07.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/952,522 10 September 2001 (10.09.2001) US

(71) Applicant: **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 5th Floor, 1111 Franklin Street, Oakland, CA 94607-5200 (US).

(72) Inventors: **HEDRICK, Marc, H.**; 5147 Valjean Avenue, Encino, CA 91346 (US). **KATZ, Adam, J.**; 503 Broadleaf Way, Charlottesville, VA 22911 (US). **LLULL, Ramon**; Placa Hostels, Santa Maria, 10-A, E-Mallorca (ES). **FUTRELL, J., William**; 1 Sweetwater Lane, Pittsburgh, PA 15238 (US). **BENHAIM, Prosper**; 16260 Dickens Street, Encino, CA 91436 (US). **LORENZ, Hermann, Peter**; 3900 Christian Drive, Belmont, CA 94002 (US). **ZHU, Min**; Apt. 309, 3175 S. Sepulveda Boulevard, Los Angeles, CA 90034 (US).

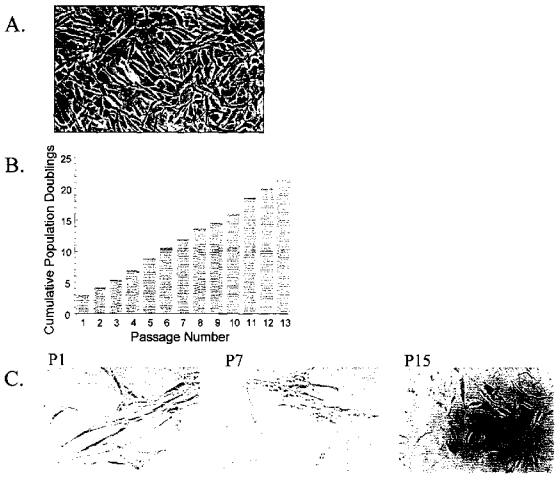
(74) Agent: **BERLINER, Robert**; Fulbright & Jaworski, L.L.P., 29th Floor, 865 South Figueroa, Los Angeles, CA 90017-2571 (US).

(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, UZ, 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).

[Continued on next page]

(54) Title: ADIPOSE-DERIVED STEM CELLS AND LATTICES



(57) Abstract: The present invention provides adipose-derived stem cells (ADSCs}, adipose-derived stem cell-enriched fractions (ADSC-EF} and adipose-derivedlattices, alone and combined with the ADSCs of the invention. In one aspect, the present invention provides an ADSC substantially free of adipocytes and red blood cells and clonal populations of connective tissue stem cells. The ADSCs can be employed, alone or within biologically-compatible compositions, to generate differentiated tissues and structures, both in vivo and in vitro. Additionally, the ADSCs can be expanded and cultured to produce molecules such as hormones, and to provide conditioned culture media for supporting the gro~ and expansion of other cell populations. In another aspect, the present invention provides a adipose-derived lattice substantially devoid of cells, which includes extracellular matrix material from adipose tissue. The lattice can be used as a substrate to facilitate the growth and differentiation of cells, whether in vivo or in vitro, into anlagen or even mature tissues or structures.

WO 03/022988 A3

Published:
— *with international search report*

(88) Date of publication of the international search report:
25 September 2003

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.