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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number
WO 2004/050827 A3

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

(21) International Application Number:
PCT/IL2003/001027

(22) International Filing Date: 3 December 2003 (03.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/430,935	5 December 2002 (05.12.2002)	US
60/446,516	12 February 2003 (12.02.2003)	US

(71) Applicant *(for all designated States except US)*: **TECHNION RESEARCH & DEVELOPMENT FOUNDATION LTD.** [IL/IL]; Senate House, Technion City, 32000 Haifa (IL).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ITSKOVITZ-ELDOR, Joseph** [IL/IL]; 42 She'erit Hapleta, 34987 Haifa (IL). **SEGEV, Hanna** [IL/IL]; Moshav Hogla, IL-38 880 Hogla (IL). **FISHMAN, Bettina** [IL/IL]; 69 Haag Street, 34 980 Haifa (IL).

(74) Agent: **G.E. EHRLICH (1995) LTD.**; 11 Menachem Begin Street, 52521 Ramat Gan (IL).

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

(84) Designated States *(regional)*: ARIPO patent (BW, 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, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, 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*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
4 November 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: CULTURED HUMAN PANCREATIC ISLETS, AND USES THEREOF

(57) Abstract: A method of generating cells capable of secreting insulin is disclosed. The method comprises subjecting mammalian embryonic stem cells to set of culturing conditions suitable for differentiation of at least a portion thereof into cells displaying at least one characteristic associated with a pancreatic islet cell progenitor phenotype, and subjecting such differentiated cells to a set of culturing conditions suitable for formation of surface bound cell clusters including insulin producing cells.

WO 2004/050827 A3