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

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 June 2007 (14.06.2007)

PCT

(10) International Publication Number
WO 2007/067460 A3

(51) International Patent Classification:
C12N 5/00 (2006.01)

(21) International Application Number:
PCT/US2006/046183

(22) International Filing Date:
1 December 2006 (01.12.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/297,797 8 December 2005 (08.12.2005) US

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(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:
26 July 2007

(48) Date of publication of this corrected version:
20 September 2007

(15) Information about Correction:
see PCT Gazette No. 38/2007 of 20 September 2007

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: MANIPULATION OF BIOLOGICAL SPECIES USING MAGNETIC FIELD MODULATORS

(57) Abstract: Methods and apparatuses for manipulating chemical and/or biological species (e.g., cells) and using magnetic fields are provided. The methods may involve patterning magnetically-susceptible cells using a magnetic field modulator. For instance, when a fluid containing cells is brought in contact with a surface and the magnetic field modulator is positioned proximate the surface, the cells may form a pattern by aligning with portions of the modulated magnetic field. Advantageously, in certain embodiments, the magnetic field modulator is not integrally connected to the surface. Thus, patterns of cells can be formed on various types of surfaces and the magnetic field modulator may be repositioned without altering the surface. Patterns comprising multiple cell types on a single surface can also be formed. Such patterns may be useful for studying cell-cell interactions and for forming three-dimensional cellular structures (e.g., tissues).

WO 2007/067460 A3