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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number
WO 2004/010103 A3

(51) International Patent Classification[7]: C12Q 1/02, C12M 1/34

(21) International Application Number: PCT/US2003/022557

(22) International Filing Date: 18 July 2003 (18.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/397,749	20 July 2002 (20.07.2002)	US
60/435,400	20 December 2002 (20.12.2002)	US
60/469,572	9 May 2003 (09.05.2003)	US

(71) Applicant *(for all designated States except US)*: **ACEA BIOSCIENCES, INC.** [US/US]; 4108 Sorrento Valley Boulevard, San Diego, CA 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **WANG, Xiaobo** [/US]; ** (US). **XU, Xiao** [/US]; ** (US).

(74) Agents: **DHAND, Sanjeev** et al.; Foley & Lardner, P.O. Box 80278, San Diego, CA 92138-0278 (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, 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 *(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, 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).

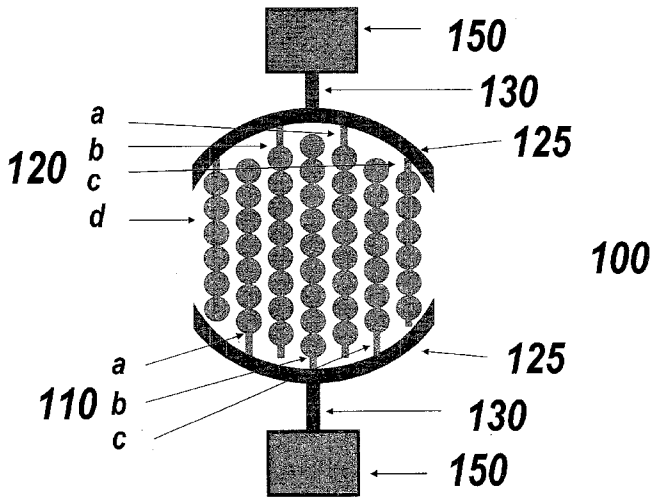
Published:

— *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*

[Continued on next page]

(54) Title: IMPEDANCE BASED DEVICES AND METHODS FOR USE IN ASSAYS



(57) Abstract: A device for detecting cells and/or molecules on an electrode surface is disclosed. The device detects cells and/or molecules through measurement of impedance changes resulting from the cells and/or molecules. A disclosed embodiment of the device includes a substrate having two opposing ends along a longitudinal axis. A plurality of electrode arrays (100) are positioned on the substrate. Each electrode array includes at least two electrodes (110, 120), and each electrode is separated from at least one adjacent electrode in the electrode array by an expanse of non-conductive material. The electrode has a width at its widest point of more than about 1.5 and less than about 10 times the width of the expanse of non-conductive material. The device also includes electrically conductive traces (125, 130) extending substantially longitudinally to one of the two opposing ends of the substrate without intersecting another trace. Each trace is in electrical communication with at least one of the electrode arrays.

WO 2004/010103 A3

(88) Date of publication of the international search report:
1 April 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.