

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
27 April 2023 (27.04.2023)



(10) International Publication Number
WO 2023/069059 A1

(51) International Patent Classification:
G01N 27/327 (2006.01)

(21) International Application Number:
PCT/US2021/055339

(22) International Filing Date:
18 October 2021 (18.10.2021)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **AGRITALK TECHNOLOGY INC.**; 10f-5
No 8, Ziqiang S. Rd., Zhubei City, Hsinchu County, 302044
(TW).

(72) Inventor; and

(71) Applicant: **WANG, Erick** [US/—]; Rm. 1005, 10F., Jan
Qi Biomedical Engineering Building, No. 75, Bo'ai St., East
Dist. Hsinchu City 300 (TW).

(72) Inventors: **CHEN, Wen-Liang**; No. 1001, University
Road, Hsinchu, 300 (TW). **CHEN, Lung-Chieh**; No. 1001,
University Road, Hsinchu, 300 (TW). **HSIAO, Chin-**

Hsien; 10f -5 No 8, Ziqiang S. Rd., Zhubei City, Hsinchu
County, 302044 (TW). **WEI, Jen-Chieh**; B1f No 18 Ln 50
Sec. 3, Nangang Rd., Nangang Dist., Taipei City, 115607
(TW). **CHEN, Sz-Hau**; B1f No 18, Ln. 50, Sec. 3, Nangang
Rd., Nangang Dist., Taipei City, 115607 (TW). **GAO, You-**
Syuan; B1F., No.18 Ln. 50, Sec 3., Nangang Rd., Nangang
Dist., Taipei City, 115607 (TW).

(74) Agent: **LU, Ching-Yi**, Giant Group Corporation, 8102 Pos-
toak Road, Potomac, MD 20854 (US).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,
SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) Title: CHIP-BASED CARTRIDGE FOR BIOLOGICAL DETECTION AND USES THEREOF

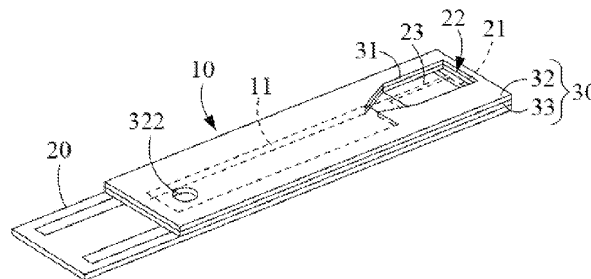


FIG. 2

(57) Abstract: The present invention provides a chip-based cartridge for biological detection and a detection method thereof, comprising a body formed by a flow guiding layer stacking with a substrate. The substrate has a reaction area positioned on part of the electrodes, and the reaction area is coated with a receptor for binding the detection target; The flow guiding layer has an opening aligned with the reaction area, the receptor is exposed at the opening corresponding to the body, and a microfluidic channel is formed between the flow guiding layer and the substrate; The sample is directly dropped from the opening to the reaction area to react with the receptor. After the reaction time, wash buffer is added to the sample in the reaction area. Then, the detection buffer is dropped into the reaction area so as to complete the sample detection without external driving force while improving the detection efficiency.

[Continued on next page]

WO 2023/069059 A1

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))