

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
25 June 2020 (25.06.2020)



(10) International Publication Number
WO 2020/131354 A1

(51) International Patent Classification:

G01N 33/543 (2006.01) G01N 27/327 (2006.01)
G01N 33/548 (2006.01) C12Q 1/6869 (2018.01)

(21) International Application Number:

PCT/US2019/064197

(22) International Filing Date:

03 December 2019 (03.12.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/780,602 17 December 2018 (17.12.2018) US

(71) Applicant: **ILLUMINA, INC.** [US/US]; 5200 Illumina Way, San Diego, California 92122 (US).

(72) Inventors: **BLACK, Hayden**; 5200 Illumina Way, San Diego, California 92122 (US). **MATHER, Brian D.**; 5200 Illumina Way, San Diego, California 92122 (US).

(74) Agent: **DIERKER, Julia Church et al.**; Dierker & Kavanaugh, P.C., 3331 W. Big Beaver Road, Suite 109, Troy, Michigan 48084 (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, 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, SM, ST, SV, SY, TH, 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, 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).

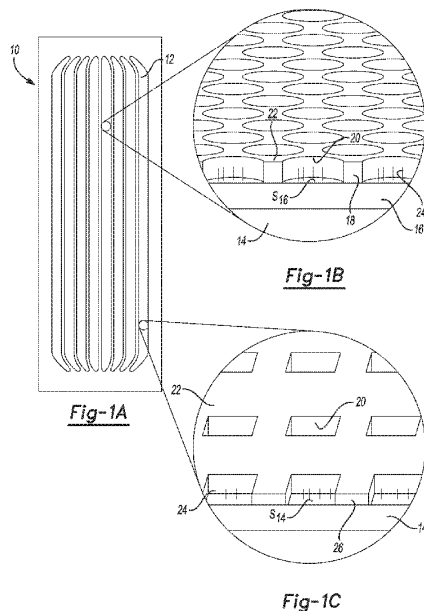
Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

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

(54) Title: FLOW CELLS AND SEQUENCING KITS



(57) Abstract: In one example, a flow cell includes a substrate, an electrode positioned on the substrate, and a patterned material positioned on the electrode. In this example, the patterned material includes depressions separated by interstitial regions, and a functionalized surface of the electrode is exposed at each of the depressions. In this example, the flow cell further includes a primer grafted to the functionalized surface in each of the depressions. In another example, a flow cell includes a substrate and a patterned electrode positioned on the substrate. In this other example, the patterned electrode includes depressions separated by interstitial regions, and a functionalized surface of the substrate exposed at each of the depressions. In this other example, a primer is grafted to the functionalized surface in each of the depressions.

WO 2020/131354 A1