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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
03 December 2020 (03.12.2020)

WIPO | PCT

(10) International Publication Number
WO 2020/243072 A1

(51) International Patent Classification:
C12M 1/00 (2006.01) *C12N 15/09* (2006.01)

(21) International Application Number:
PCT/US2020/034510

(22) International Filing Date:
26 May 2020 (26.05.2020)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/855,657 31 May 2019 (31.05.2019) US

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(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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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:
— *of inventorship (Rule 4.17(iv))*

Published:
— *with international search report (Art. 21(3))*

WO 2020/243072 A1

(54) **Title:** FLOW CELL WITH SELECTIVE DEPOSITION OR ACTIVATION OF NUCLEOTIDES

(57) **Abstract:** An apparatus includes a flow cell body, a plurality of electrodes, an integrated circuit, and an imaging assembly. The flow cell body defines one or more flow channels and a plurality of wells. Each flow channel is configured to receive a flow of fluid. Each well is fluidically coupled with the corresponding flow channel Each well is configured to contain at least one polynucleotide. Each electrode is positioned in a corresponding well of the plurality of wells. The electrodes are operable to effect writing of polynucleotides in the corresponding wells. The integrated circuit is operable to drive selective deposition or activation of selected nucleotides to attach to polynucleotides in the wells to thereby generate polynucleotides representing machine-written data in the wells. The imaging assembly is operable to capture images indicative of one or more nucleotides in a polynucleotide.