

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
30 April 2020 (30.04.2020)



(10) International Publication Number
WO 2020/086746 A1

(51) International Patent Classification:

C12N 15/10 (2006.01) C12Q 1/6869 (2018.01)
C12Q 1/6827 (2018.01)

(21) International Application Number:

PCT/US2019/057704

(22) International Filing Date:

23 October 2019 (23.10.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/750,370 25 October 2018 (25.10.2018) US
62/903,108 20 September 2019 (20.09.2019) US

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

(72) Inventors: **BERTI, Lorenzo**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, California 92122 (US). **BLACK, Fiona E.**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, California 92122 (US). **BRODIN, Jeffrey Dennis**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, California 92122 (US). **FISHER, Jeffrey**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, California 92122 (US). **LEONG, Siew Hong**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US). **SEGALE, Darren**; c/o Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US).

(74) Agent: **FULLER, Michael L.**; 2040 Main Street, Fourteenth Floor, Irvine, California 92614 (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).

Published:

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

(54) Title: METHODS AND COMPOSITIONS FOR IDENTIFYING LIGANDS ON ARRAYS USING INDEXES AND BAR-CODES

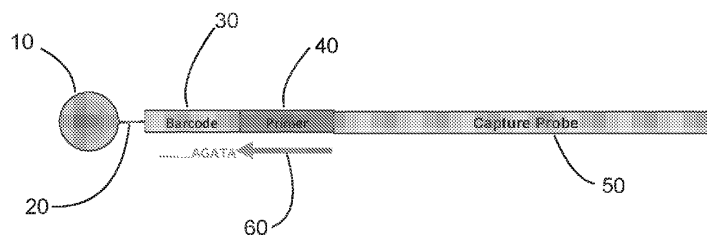


FIG. 1

(57) Abstract: Some embodiments provided herein include methods and compositions for the detection of target ligands on an array. In some embodiments, a capture probe specifically binds to a target ligand from a sample, the location of a bead comprising the capture probe in an array is determined, and the bead is decoded to identify the capture probe and the sample. In some embodiments, a barcode is indicative of a capture probe attached to a bead; and an index is indicative of a subpopulation of beads. In some embodiments, the barcode and the index are determined by sequencing.



WO 2020/086746 A1