

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
09 May 2019 (09.05.2019)



(10) International Publication Number
WO 2019/090251 A3

(51) International Patent Classification:

G16B 35/10 (2019.01) C12Q 1/6869 (2018.01)
C12Q 1/6806 (2018.01) C40B 40/06 (2006.01)

(21) International Application Number:

PCT/US2018/059255

(22) International Filing Date:

05 November 2018 (05.11.2018)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/582,175 06 November 2017 (06.11.2017) US

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

(72) Inventors: **VIECELI, John S.**; 5200 Illumina Way, San Diego, California 92122 (US). **KELLEY, Ryan Matthew**; 5200 Illumina Way, San Diego, California 92122 (US).

(74) Agent: **BAKKER, Jila et al.**; P.O. Box 692289, Houston, Texas 77269 (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).

(54) Title: NUCLEIC ACID INDEXING TECHNIQUES

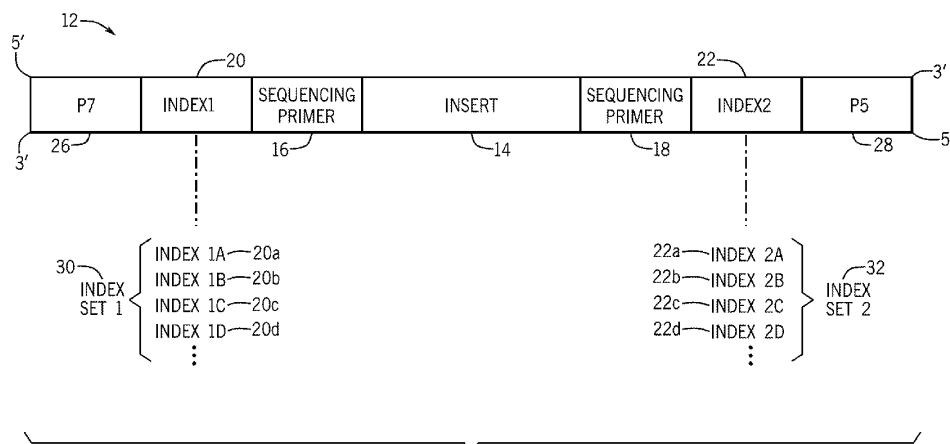


FIG. 1

(57) Abstract: Presented herein are techniques for indexing of nucleic acid, e.g., for use in conjunction with sequencing. The techniques include generating indexed nucleic acid fragments from an individual sample, whereby the index sequence incorporated into each index site of the nucleic acid fragment is selected from a plurality of distinguishable of index sequences and such that the population of generated nucleic acid fragments represents each index sequence from the plurality. In this manner, the generated indexed nucleic acid fragments from a single sample are indexed with a diverse mix of index sequences that reduce misassignment due to index read errors associated with low sequence diversity.

[Continued on next page]

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

16 January 2020 (16.01.2020)