

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
01 December 2022 (01.12.2022)



(10) International Publication Number
WO 2022/251032 A1

(51) International Patent Classification:

C12P 19/30 (2006.01) *C07H 19/10* (2006.01)
C12N 9/12 (2006.01) *C07H 19/16* (2006.01)
C12Q 1/6869 (2018.01) *C07H 19/20* (2006.01)
C12P 19/34 (2006.01) *C07H 21/04* (2006.01)
C07H 19/06 (2006.01)

(21) International Application Number:

PCT/US2022/030008

(22) International Filing Date:

19 May 2022 (19.05.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/193,413 26 May 2021 (26.05.2021) US

(71) Applicants: **ILLUMINA, INC.** [US/US]; 5200 Illumina Way, San Diego, CA 92122 (US). **ILLUMINA CAMBRIDGE LIMITED** [GB/GB]; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB).

(72) Inventors: **SCHNEIDER, Kim**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **BETLEY, Jason**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **MILLER, Oliver**; 19 Granta Park, Great Abington, Cambridge, CB21 6DF (GB). **DREWS, Bradley**; 5200 Illumina Way, San Diego, CA 92122 (US). **SMITH, Dominic**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **PANCHAPAKESAN, Rajagopal**; 5200 Illumina Way, San Diego, CA 92122 (US). **MCCAULEY, Patrick**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **MASON, Stephen**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **MOSCHETTI, Tommaso**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **CHESNEY, Michael**; 5200 Illumina Way, San Diego, CA 92122 (US). **RICHARDSON, Marta**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **LAWRENCE, Elliot**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **JACKSON, Amanda**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **JACKSON, Rosamond**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB). **IMSAND, Erin**; 5200 Illumina Way, San Diego, CA 92122 (US). **DAY, Henry**; 19 Granta Park, Great Abington, Cambridge CB21 6DF (GB).

(74) Agent: **CHOI, Jaime, D.** et al.; Snell & Wilmer L.L.P., 400 East Van Buren St., Phoenix, AZ 85004-2202 (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, IQ, IR, IS, IT, JM, 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).

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))

(54) Title: PURIFYING AND POLYMERIZING 3'-BLOCKED NUCLEOTIDES

(57) Abstract: A method for purifying nucleotides is provided, that includes preparing a solution comprising (a) 3'-blocked nucleotides, (b) 3'-OH nucleotides, (c) a polishing polymerase, and (d) a template. The polishing polymerase and the template are used to selectively polymerize the 3'-OH nucleotides and thus reduce a concentration in the solution of the 3'-OH nucleotides relative to the 3'-blocked nucleotides.

WO 2022/251032 A1