

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
02 July 2020 (02.07.2020)



(10) International Publication Number
WO 2020/136170 A3

(51) International Patent Classification:

C07H 19/06 (2006.01) C07H 19/20 (2006.01)
C07H 19/10 (2006.01) C07H 21/00 (2006.01)
C07H 19/16 (2006.01) C12Q 1/68 (2018.01)

(21) International Application Number:

PCT/EP2019/086926

(22) International Filing Date:

23 December 2019 (23.12.2019)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

62/784,970 26 December 2018 (26.12.2018) US
62/784,994 26 December 2018 (26.12.2018) US

(71) Applicant: **ILLUMINA CAMBRIDGE LIMITED**
[GB/GB]; 19 Granta Park, Great Abington, Cambridge
Cambridgeshire CB21 6DF (GB).

(72) Inventors: **FRANCAIS, Antoine**; C/O Illumina Cambridge Limited, 19 Granta Park, Great Abington, Cambridge Cambridgeshire CB21 6DF (GB). **CRESSINA, Elena**; C/O Illumina Cambridge Limited, 19 Granta Park, Great Abington, Cambridge Cambridgeshire CB21 6DF (GB). **CULLEY, Adam**; C/O Illumina Cambridge Limited, 19 Granta Park, Great Abington, Cambridge Cambridgeshire CB21 6DF (GB). **MARIANI, Angelica**; C/O Illumina Cambridge Limited, 19 Granta Park, Great Abington, Cambridge Cambridgeshire CB21 6DF (GB). **WU, Xiaolin**; C/O Illumina Cambridge Limited, 19 Granta Park, Great Abington, Cambridge Cambridgeshire CB21 6DF (GB). **LIU, Xiaohai**; C/O Illumina Cambridge Limited, 19 Granta Park, Great Abington, Cambridge Cambridgeshire CB21 6DF (GB).

(74) Agent: **MURGITROYD & COMPANY**; Scotland House, 165-169 Scotland Street, Glasgow Strathclyde G5 8PL (GB).

(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))
- 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:

13 August 2020 (13.08.2020)

(54) Title: NUCLEOSIDES AND NUCLEOTIDES WITH 3'-HYDROXY BLOCKING GROUPS AND THEIR USE IN POLYNUCLEOTIDE SEQUENCING METHODS

(57) Abstract: Embodiments of the present disclosure relate to nucleotide and nucleoside molecules with acetal or thiocarbamate 3'-OH blocking groups. Also provided herein are methods to prepare such nucleotide and nucleoside molecules, and the uses of fully functionalized nucleotides containing the 3'-OH blocking group for sequencing applications.

WO 2020/136170 A3