

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
15 September 2022 (15.09.2022)



(10) International Publication Number
WO 2022/192083 A1

(51) International Patent Classification:

C12Q 1/6837 (2018.01) *C08F 8/00* (2006.01)
C12Q 1/6874 (2018.01) *B82Y 30/00* (2011.01)
C12Q 1/68 (2018.01) *C08F 220/56* (2006.01)
B01J 19/00 (2006.01) *C08F 220/60* (2006.01)
C09D 149/00 (2006.01)

(21) International Application Number:

PCT/US2022/018909

(22) International Filing Date:

04 March 2022 (04.03.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/158,470 09 March 2021 (09.03.2021) US

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

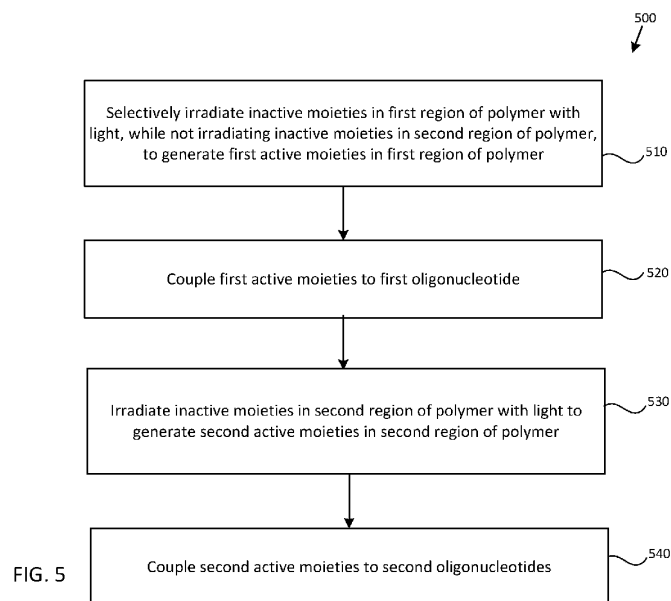
(72) Inventors: **MATHER, Brian**; Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US). **XI, Weixian**; Illumina, Inc., 5200 Illumina Way, San Diego, CA 92122 (US).

(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, 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,

(54) Title: POLYMERS, METHODS OF MAKING POLYMERS, AND METHODS OF COUPLING OLIGONUCLEOTIDES TO POLYMERS



(57) Abstract: In some examples, a method of coupling oligonucleotides to a polymer is provided. Inactive moieties in a first region of a polymer may be selectively irradiated with light, while inactive moieties in a second region of the polymer are not irradiated, to generate first active moieties in the first region of the polymer. The first active moieties may be coupled to first oligonucleotides. The inactive moieties in the second region of the polymer may be irradiated with light to generate second active moieties in the second region of the polymer. The second active moieties may be coupled to second oligonucleotides.

[Continued on next page]

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))