

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
21 March 2019 (21.03.2019)



(10) International Publication Number
WO 2019/055951 A1

(51) International Patent Classification:

C07C 317/28 (2006.01) C12N 15/113 (2010.01)
C07H 21/02 (2006.01) C12Q 1/68 (2018.01)
C12N 15/11 (2006.01)

(21) International Application Number:

PCT/US2018/051398

(22) International Filing Date:

17 September 2018 (17.09.2018)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

62/560,169 18 September 2017 (18.09.2017) US

(71) Applicant: **WAVE LIFE SCIENCES LTD.** [SG/SG]; 7
Straits View #12-00, Marina One East Tower, Singapore
048424 (SG).

(72) Inventors; and

(71) Applicants (for US only): **BOWMAN, Keith Andrew**
[US/US]; c/o WAVE LIFE SCIENCES LTD., 733 Con-
cord Avenue, Cambridge, Massachusetts 02138 (US).
VARGESE, Chandra [US/US]; c/o WAVE LIFE

SCIENCES LTD., 733 Concord Avenue, Cambridge,
Massachusetts 02138 (US). **BUTLER, David Charles**
Donnell [GB/US]; c/o WAVE LIFE SCIENCES LTD.,
733 Concord Avenue, Cambridge, Massachusetts 02138
(US). **KANDASAMY, Pachamuthu** [CA/US]; c/o WAVE
LIFE SCIENCES LTD., 733 Concord Avenue, Cam-
bridge, Massachusetts 02138 (US). **ALAM, Mohammed**
Rowshon [US/US]; c/o WAVE LIFE SCIENCES LTD.,
733 Concord Avenue, Cambridge, Massachusetts 02138
(US). **SHIMIZU, Mamoru** [JP/US]; c/o WAVE LIFE
SCIENCES LTD., 733 Concord Avenue, Cambridge, Mass-
achusetts 02138 (US). **STANDLEY, Stephany Michelle**
[US/US]; c/o WAVE LIFE SCIENCES LTD., 733 Concord
Avenue, Cambridge, Massachusetts 02138 (US). **ADUDA,**
Vincent [US/US]; c/o WAVE LIFE SCIENCES LTD., 733
Concord Avenue, Cambridge, Massachusetts 02138 (US).
BOMMINENI, Gopal Reddy [US/US]; c/o WAVE LIFE
SCIENCES LTD., 733 Concord Avenue, Cambridge, Mass-
achusetts 02138 (US). **TRIPATHI, Snehlata** [IN/US]; c/
o WAVE LIFE SCIENCES LTD., 733 Concord Avenue,
Cambridge, Massachusetts 02138 (US). **KORBOUKH,**
Ilia [US/US]; c/o WAVE LIFE SCIENCES LTD., 733 Con-
cord Avenue, Cambridge, Massachusetts 02138 (US).

(54) Title: TECHNOLOGIES FOR OLIGONUCLEOTIDE PREPARATION

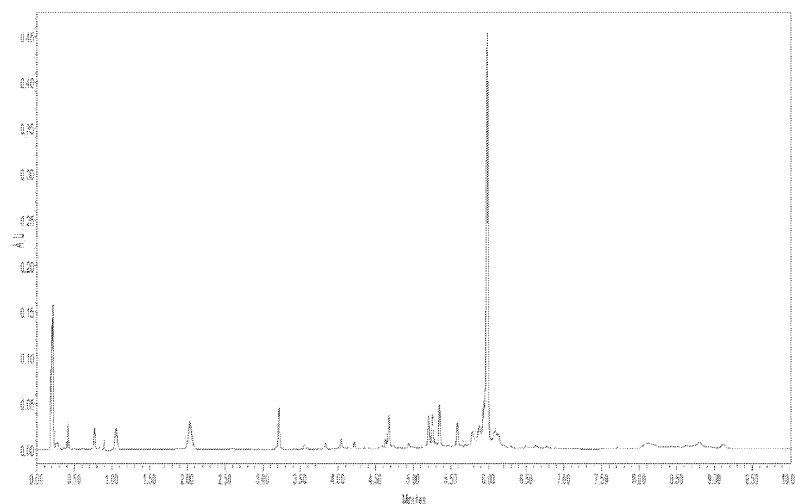


FIG. 1

(57) Abstract: Among other things, the present disclosure provides technologies for oligonucleotide preparation, particularly chirally controlled oligonucleotide preparation, which technologies provide greatly improved crude purity and yield, and significantly reduce manufacturing costs.

[Continued on next page]

WO 2019/055951 A1

(74) **Agent:** LI, Xiaodong et al.; Choate, Hall & Stewart LLP,
Two International Place, Boston, Massachusetts 02110
(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))
- 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))