

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
13 August 2020 (13.08.2020)



(10) International Publication Number
WO 2020/163755 A1

(51) International Patent Classification:

A61K 35/12 (2006.01) A61K 35/28 (2015.01)
A61K 35/14 (2015.01) A61K 48/00 (2006.01)

(21) International Application Number:

PCT/US2020/017283

(22) International Filing Date:

07 February 2020 (07.02.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/803,142 08 February 2019 (08.02.2019) US

(71) Applicants: **DNA TWOPOINTO INC.** [US/US]; 37950 Central Court, Newark, California 94560 (US). **THE GENERAL HOSPITAL CORPORATION** [US/US]; 55 Fruit Street, Boston, Massachusetts 02114 (US).

(72) Inventors: **COBBOLD, Mark**; 1 Everett Avenue, Winchester, Massachusetts 01890 (US). **LEE, Maggie**; 2831 Buena Knoll Court, San Jose, California 95121 (US). **MINSHULL, Jeremy**; 679 Los Ninos Way, Los Altos, California 94022 (US). **SHI, Feng**; 25 Arthur St., Winchester, Massachusetts 01890 (US). **SHUI, Yifang**; 83 Saint Botolph St., Apt 505, Boston, Massachusetts 02116 (US).

(74) Agent: **LIEBESCHUETZ, Joe et al.**; Alston & Bird LLP, Bank of America Plaza, 101 South Tryon Street, Suite 4000, Charlotte, North Carolina 28280-4000 (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, 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).

Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

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))
- with sequence listing part of description (Rule 5.2(a))

(54) Title: TRANSPOSON-BASED MODIFICATIONS OF IMMUNE CELLS

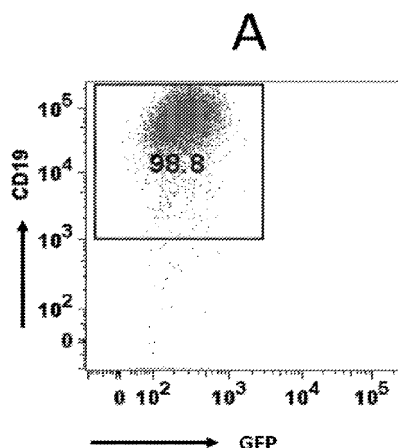


FIGURE 1

(57) Abstract: The present invention provides methods and compositions for stable genetic modification of immune cells. The genetic modifications can be used to produce immune cells for therapeutic or diagnostic purposes.

WO 2020/163755 A1