



(51) International Patent Classification:

A61K 31/713 (2006.01) A61K 39/215 (2006.01)
A61K 35/66 (2015.01) A61K 39/395 (2006.01)
A61K 38/16 (2006.01)

(72) Inventors: SATO, Aaron; 681 Gateway Boulevard, South San Francisco, California 94080 (US). LIU, Qiang; 681 Gateway Boulevard, South San Francisco, California 94080 (US). YUAN, Tom; 681 Gateway Boulevard, South San Francisco, California 94080 (US).

(21) International Application Number:

PCT/US2021/029485

(74) Agent: DUSABAN GONZALES, Stephanie S.; Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, California 94304 (US).

(22) International Filing Date:

27 April 2021 (27.04.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/016,254 27 April 2020 (27.04.2020) US
63/034,896 04 June 2020 (04.06.2020) US
63/069,665 24 August 2020 (24.08.2020) US
63/073,362 01 September 2020 (01.09.2020) US
63/104,465 22 October 2020 (22.10.2020) US
63/115,568 18 November 2020 (18.11.2020) 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, 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.

(71) Applicant: TWIST BIOSCIENCE CORPORATION
[US/US]; 681 Gateway Boulevard, South San Francisco, California 94080 (US).

(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,

(54) Title: VARIANT NUCLEIC ACID LIBRARIES FOR CORONAVIRUS

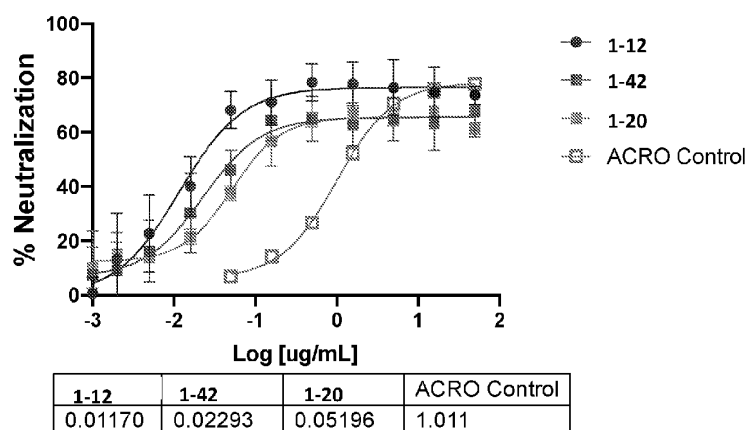


FIG. 19C

(57) Abstract: Provided herein are methods and compositions relating to libraries of optimized antibodies having nucleic acids encoding for an antibody comprising modified sequences. Libraries described herein comprise nucleic acids encoding SARS-CoV-2 or ACE2 antibodies. Further described herein are protein libraries generated when the nucleic acid libraries are translated. Further described herein are cell libraries expressing variegated nucleic acid libraries described herein.

[Continued on next page]

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 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))*

(88) Date of publication of the international search report:

09 December 2021 (09.12.2021)