



- (51) **International Patent Classification:**  
*C07K 14/18* (2006.01) *C12N 15/86* (2006.01)  
*C12N 7/04* (2006.01)
- (21) **International Application Number:**  
PCT/US2022/080515
- (22) **International Filing Date:**  
28 November 2022 (28.11.2022)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
63/283,660 29 November 2021 (29.11.2021) US
- (71) **Applicant: REPLICATE BIOSCIENCE, INC.** [US/US];  
10210 Campus Point Dr., Suite #150, San Diego, California  
92121 (US).
- (72) **Inventors: WANG, Nathaniel Stephen;** c/o Replicate  
Bioscience, Inc., 10210 Campus Point Dr., Suite #150,  
San Diego, California 92121 (US). **MIYAKE-STONER,**  
**Shigeki Joseph;** c/o Replicate Bioscience, Inc., 10210  
Campus Point Dr., Suite #150, San Diego, California 92121  
(US). **ALIAHMAD, Parinaz;** c/o Replicate Bioscience,  
Inc., 10210 Campus Point Dr., Suite #150, San Diego, Cal-  
ifornia 92121 (US).
- (74) **Agent: DANG, David V. et al.;** One Financial Center,  
Boston, Massachusetts 02111 (US).

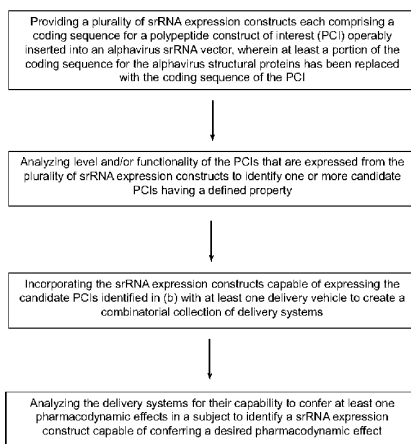
(81) **Designated States** (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,  
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,  
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE,  
KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU,  
LY, MA, MD, 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, CV,  
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, ME, 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))
- with sequence listing part of description (Rule 5.2(a))

(54) **Title:** METHODS OF GENERATING SELF-REPLICATING RNA MOLECULES



**FIG. 1**

(57) **Abstract:** The present disclosure generally relates to new processes for generating self-replicating RNA (srRNA) systems with superior expression properties. The disclosure also provides nucleic acids and recombinant cells expressing such srRNA constructs as well as pharmaceutical compositions containing the same. Further provided are compositions and methods for inducing pharmacodynamic effects in a subject and for the prevention and/or treatment of various health conditions.