



- (51) **International Patent Classification:**
B01D 15/36 (2006.01) *A61K 39/12* (2006.01)
C12N 7/00 (2006.01)
- (21) **International Application Number:**
PCT/US2023/061230
- (22) **International Filing Date:**
25 January 2023 (25.01.2023)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/302,910 25 January 2022 (25.01.2022) US
63/302,920 25 January 2022 (25.01.2022) US
63/385,274 29 November 2022 (29.11.2022) US
63/385,309 29 November 2022 (29.11.2022) US
- (71) **Applicant:** **TAKEDA VACCINES, INC.** [US/US]; 75 Sidney Street, Cambridge, Massachusetts 02139 (US).
- (72) **Inventors:** **SANTANGELO, Joseph David**; c/o Takeda Vaccines, 75 Sidney Street, Cambridge, Massachusetts

02139 (US). **LIVENGGOOD, Jill A.**; c/o Takeda Vaccines, Inc., 75 Sidney Street, Cambridge, Massachusetts 02139 (US). **LEE, Yockann**; c/o Takeda Vaccines Private Limited, 21 Biopolis Road, Nucleos North Tower, Level 4, Singapore 138567 (SG). **LUO, Weiwen**; c/o Takeda Vaccines Private Limited, 21 Biopolis Road, Nucleos North Tower, Level 4, Singapore 138567 (SG).

(74) **Agent:** **FOX, Harold H.**; 1440 New York Ave NW, Suite 200, Washington, District of Columbia 20005 (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,

(54) **Title:** LARGE-SCALE FLAVIVIRAL VACCINE PRODUCTION AND MANUFACTURE

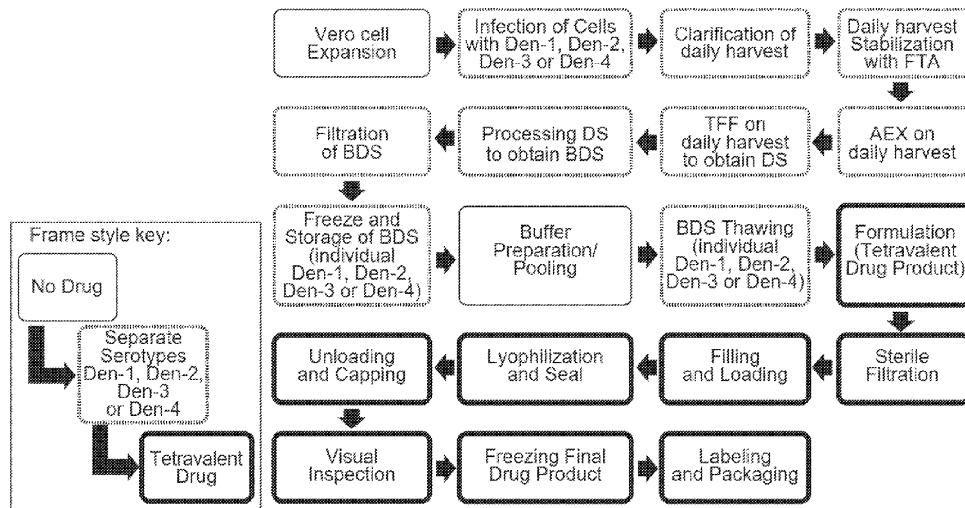


Figure 1

(57) **Abstract:** The present invention provides methods for large-scale flaviviral vaccine production and manufacture. The methods provided herein are specifically contemplated for large-scale production and manufacture of live, attenuated flaviviral vaccines such as live, attenuated, dengue virus vaccines. Further, the methods provided herein pertain to formulation of live, attenuated, monovalent, divalent, trivalent, or tetravalent viral vaccine products.

[Continued on next page]

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, SC, 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).

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*

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))*

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

05 October 2023 (05.10.2023)