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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 November 2023 (23.11.2023)

WIPO | PCT

(10) International Publication Number
WO 2023/225562 A1

(51) International Patent Classification:
A61K 39/12 (2006.01)

(21) International Application Number:
PCT/US2023/067127

(22) International Filing Date:
17 May 2023 (17.05.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

63/342,953	17 May 2022 (17.05.2022)	US
63/367,109	27 June 2022 (27.06.2022)	US
63/378,151	03 October 2022 (03.10.2022)	US
63/387,092	12 December 2022 (12.12.2022)	US

(71) Applicant: **ICOSAVAX, INC.** [US/US]; 1930 Boren Avenue, Suite 1000, Seattle, WA 98101 (US).

(72) Inventors: **FELDHAUS, Andrew, L.**; c/o Icosavax, Inc., 1930 Boren Avenue, Suite 1000, Seattle, WA 98101 (US). **HOLTZMAN, Douglas, A.**; c/o Icosavax, Inc., 1930 Boren Avenue, Suite 1000, Seattle, WA 98101 (US). **CIARLET, Max**; c/o Icosavax, Inc., 1930 Boren Avenue, Suite 1000, Seattle, WA 98101 (US). **KANESA-THASAN, Niranjan**; c/o Icosavax, Inc., 1930 Boren Avenue, Suite 1000, Seattle, WA 98101 (US).

(74) Agent: **MIRON, Anna** et al.; Mintz Levin Cohn Ferris Glovsky and Popeo, P.C., One Financial Center, Boston, MA 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, MU, 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, 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).

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: MULTIVALENT VACCINE FOR PARAMYXOVIRUSES AND USES THEREOF

(57) Abstract: Provided are compositions pharmaceutical compositions, comprising two or more virus-like particles (VLPs), wherein a first virus-like particle (VLP) comprises a first component comprising a respiratory syntactical virus (RSV) F protein ectodomain or antigenic variant thereof; and a second virus-like particle (VLP) comprises a first component comprising a comprises a human metapneumovirus (hMPV) F protein ectodomain or antigenic variant thereof. Further provided are methods of using said compositions for vaccination.

WO 2023/225562 A1