

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
11 May 2023 (11.05.2023)



(10) International Publication Number
WO 2023/081798 A1

(51) International Patent Classification:

A61K 39/12 (2006.01) A61P 31/16 (2006.01)

A61K 39/145 (2006.01)

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.

(21) International Application Number:

PCT/US2022/079274

(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).

(22) International Filing Date:

04 November 2022 (04.11.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/276,284 05 November 2021 (05.11.2021) US

Published:

- with international search report (Art. 21(3))
- with sequence listing part of description (Rule 5.2(a))

(71) Applicant: **SANOFI PASTEUR INC.** [US/US]; 1 Discovery Drive, Swiftwater, PA 18370 (US).

(72) Inventors: **ALEFANTIS, Timothy**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **BARRO, Mario**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **BYERS, Anthony**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **CORTES-GARCIA, Guadalupe**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **GILBERT, Philippe-Alexandre**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **KLEANTHOUS, Harold**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02138 (US). **NAIK, Armaghani**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **PUGACHEV, Konstantin**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **SRIDHAR, Saranya**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **VOGEL, Thorsten**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US). **WARREN, William**; c/o Sanofi Pasteur Inc., IP Dept., 38 Sidney Street, Cambridge, MA 02139 (US).

(74) Agent: **DONALDSON, Timothy, B.**; MH2 Technology Law Group, 1951 Kidwell Drive, Suite 310, Tysons Corner, VA 22182 (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,

(54) Title: MULTIVALENT INFLUENZA VACCINES COMPRISING RECOMBINANT HEMAGGLUTININ AND NEURAMINIDASE AND METHODS OF USING THE SAME

(57) Abstract: Disclosed herein are multivalent vaccine or immunogenic compositions comprising one or more recombinant influenza virus hemagglutinin (HA), one or more recombinant influenza virus neuraminidase (NA), and an optional adjuvant. Also disclosed are methods of using the vaccine or immunogenic composition.

WO 2023/081798 A1