

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
01 June 2023 (01.06.2023)



(10) International Publication Number
WO 2023/097003 A3

(51) International Patent Classification:

A61K 39/145 (2006.01) C07K 14/165 (2006.01)
C07K 14/01 (2006.01) C07K 14/47 (2006.01)
C07K 14/11 (2006.01) C12N 15/62 (2006.01)

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

(21) International Application Number:

PCT/US2022/050908

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))

(22) International Filing Date:

23 November 2022 (23.11.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/283,029 24 November 2021 (24.11.2021) US

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

27 July 2023 (27.07.2023)

(71) Applicant: **FLAGSHIP PIONEERING INNOVATIONS VI, LLC** [US/US]; 55 Cambridge Parkway, 8th Floor, Cambridge, MA 02142 (US).

(72) Inventors: **NELSON, Jennifer, A.**; 55 Cambridge Parkway, 8th Floor, Cambridge, MA 02142 (US). **CARTER, Erik, Paul**; 55 Cambridge Parkway, 8th Floor, Cambridge, MA 02142 (US). **MELFI, Michael, Donato**; 55 Cambridge Parkway, 8th Floor, Cambridge, MA 02142 (US).

(74) Agent: **BELLIVEAU, Michael, J.** et al.; Clark & Elbing LLP, 101 Federal Street, 15th Floor, Boston, MA 02110 (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).

(54) Title: IMMUNOGENIC COMPOSITIONS AND THEIR USES

(57) Abstract: This disclosure provides compositions, pharmaceutical preparations, and methods relating to circular polyribonucleotides encoding an immunogen and a multimerization domain useful in the development and production of vaccines.

WO 2023/097003 A3