

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
09 November 2023 (09.11.2023)



(10) International Publication Number
WO 2023/214082 A2

(51) International Patent Classification:

A61K 39/02 (2006.01) C12N 15/82 (2006.01)
A61P 31/04 (2006.01)

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).

(21) International Application Number:

PCT/EP2023/062066

Published:

— without international search report and to be republished
upon receipt of that report (Rule 48.2(g))

(22) International Filing Date:

05 May 2023 (05.05.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

22305680.5	06 May 2022 (06.05.2022)	EP
22306227.4	16 August 2022 (16.08.2022)	EP
63/449,573	02 March 2023 (02.03.2023)	US

(71) Applicant: **SANOFI** [FR/FR]; 46, avenue de la Grande Armée, 75017 PARIS (FR).

(72) Inventors: **GIRERD-CHAMBAZ, Yves**; c/o Sanofi, Patent Department, 46 avenue de la Grande Armée, 75017 PARIS (FR). **PAVOT, Vincent**; c/o Sanofi, Patent Department, 46 avenue de la Grande Armée, 75017 PARIS (FR). **CIVAT, Céline**; c/o Sanofi, Patent Department, 46 avenue de la Grande Armée, 75017 PARIS (FR). **PION, Corinne**; c/o Sanofi, Patent Department, 46 avenue de la Grande Armée, 75017 PARIS (FR).

(74) Agent: **ERNEST GUTMANN - YVES PLASSERAUD SAS**; Park View - Tête d'Or 77, boulevard de la Bataille de Stalingrad, CS 60306, 69603 VILLEURBANNE CEDEX (FR).

(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,

(54) Title: SIGNAL SEQUENCES FOR NUCLEIC ACID VACCINES

(57) Abstract: Provided herein is a nucleic acid (e.g., messenger RNA) vaccine encoding at least one antigenic prokaryotic polypeptide linked to one or both of a viral secretion signal peptide and a transmembrane domain. Also provided are methods of vaccination against a prokaryotic infection with the nucleic acid described herein.

WO 2023/214082 A2