

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
12 September 2024 (12.09.2024)



(10) International Publication Number
WO 2024/184500 A1

(51) International Patent Classification:

A61K 9/51 (2006.01) *A61P 37/02* (2006.01)
A61K 39/00 (2006.01) *A61P 37/08* (2006.01)
A61K 31/7088 (2006.01) *C07C 15/00* (2006.01)
A61P 31/00 (2006.01) *C12N 15/00* (2006.01)
A61P 35/00 (2006.01)

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).

(21) International Application Number:

PCT/EP2024/056128

Published:

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

(22) International Filing Date:

08 March 2024 (08.03.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

PCT/EP2023/055852

08 March 2023 (08.03.2023) EP

(71) Applicant: **CUREVAC SE** [DE/DE]; Friedrich-Miescher-Straße 15, 72076 Tübingen (DE).

(72) Inventors: **NAVARRO, Gemma**; c/o CureVac SE-IP Abteilung, Friedrich-Miescher-Straße 15, 72076 Tübingen (DE). **PALMERSTON MENDES, Livia**; c/o CureVac SE-IP Abteilung, Friedrich-Miescher-Straße 15, 72076 Tübingen (DE). **BAUMHOF, Patrick**; c/o CureVac SE-IP Abteilung, Friedrich-Miescher-Straße 15, 72076 Tübingen (DE). **MURESAN, Paula**; c/o CureVac SE-IP Abteilung, Friedrich-Miescher-Straße 15, 72076 Tübingen (DE). **BÖTTGER, Roland**; c/o CureVac SE-IP Abteilung, Friedrich-Miescher-Straße 15, 72076 Tübingen (DE).

(74) Agent: **MAIWALD GMBH**; Dr. Andreas Ledl, Elisenhof, Elisenstraße 3, 80335 München (DE).

(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,

(54) Title: NOVEL LIPID NANOPARTICLE FORMULATIONS FOR DELIVERY OF NUCLEIC ACIDS

(57) Abstract: The present invention provides novel ionizable lipids and novel lipid nanoparticles comprising messenger RNA (mRNA) useful for the delivery of nucleic acids, related pharmaceutical compositions or vaccines as defined herein for use in human or veterinary medicine, in particular for use in the treatment and/or prophylaxis of cancer diseases.



WO 2024/184500 A1