



(51) International Patent Classification:

A61K 39/39 (2006.01) C12N 9/12 (2006.01)
A61P 37/04 (2006.01) C12N 15/88 (2006.01)

(21) International Application Number:

PCT/US2023/066975

(22) International Filing Date:

12 May 2023 (12.05.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/341,984 13 May 2022 (13.05.2022) US

(71) Applicant: **CORNER THERAPEUTICS, INC.** [US/US];
300 North Beacon Street, Building 39, Suite 202, Water-
town, Massachusetts 02472 (US).

(72) Inventors: **GOSSELIN, Emily**; c/o Corner Therapeutics,
Inc., 300 North Beacon Street, Building 39, Suite 202, Wa-
tertown, Massachusetts 02472 (US). **ZHIVAKI, Dania**;
c/o Corner Therapeutics, Inc., 300 North Beacon Street,
Building 39, Suite 202, Watertown, Massachusetts 02472
(US). **CHOW, Jonathan**; c/o Corner Therapeutics, Inc.,
300 North Beacon Street, Building 39, Suite 202, Water-
town, Massachusetts 02472 (US). **NIKIFOROV, Anasta-**
sia; c/o Corner Therapeutics, Inc., 300 North Beacon Street,
Building 39, Suite 202, Watertown, Massachusetts 02472

(US). **SENGUPTA, Debrup**; c/o Corner Therapeutics, Inc.,
300 North Beacon Street, Building 39, Suite 202, Water-
town, Massachusetts 02472 (US).

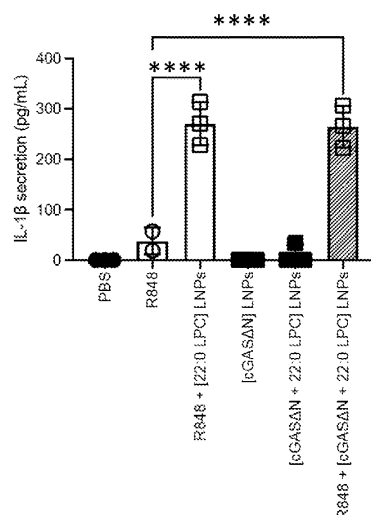
(74) Agent: **LEKUTIS, Christine** et al.; Morrison & Foerster
LLP, 425 Market Street, San Francisco, California 94105
(US).

(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,

(54) Title: NUCLEIC ACIDS ENCODING A CONSTITUTIVELY-ACTIVE CYCLIC GMP-AMP SYNTHASE AND IMMUNO-
GENIC DELIVERY VEHICLES FOR SAME

FIG. 4A



(57) Abstract: The present disclosure relates to compositions for expression of a constitutively-active cyclic GMP-AMP synthase in cells of a mammalian subject and uses thereof for enhancing immunogenicity of mRNA vaccines. The mRNA may be encapsulated in a lipid nanoparticle (LNP) or may be complexed with a lipid (RNA-Lipoplex). The present disclosure also relates to compositions further comprising one or both of a lysophosphatidylcholine (LPC) compound and a pathogen recognition receptor agonist.

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))*