

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
20 April 2023 (20.04.2023)



(10) International Publication Number
WO 2023/064924 A1

(51) International Patent Classification:

C12N 5/0775 (2010.01) C12N 15/09 (2006.01)
C12N 9/00 (2006.01) C12N 15/63 (2006.01)

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/US2022/078150

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

(22) International Filing Date:

14 October 2022 (14.10.2022)

Published:

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

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/255,857 14 October 2021 (14.10.2021) US

(71) Applicant: **CODIAK BIOSCIENCES, INC.** [US/US]; 35
CambridgePark Drive, Suite 500, Cambridge, MA 02140
(US).

(72) Inventors: **MARTIN, Shelly, A.**; c/o Codiak BioSciences,
Inc., 35 CambridgePark Drive, Suite 500, Cambridge, MA
02140 (US). **MCCONNELL, Russell, E.**; c/o Codiak
BioSciences, Inc., 35 CambridgePark Drive, Suite 500,
Cambridge, MA 02140 (US). **FINN, Jonathan**; c/o Codi-
ak BioSciences, Inc., 35 CambridgePark Drive, Suite 500,
Cambridge, MA 02140 (US). **ESTES, Scott, D.**; c/o Codi-
ak BioSciences, Inc., 35 CambridgePark Drive, Suite 500,
Cambridge, MA 02140 (US).

(74) Agent: **KIM, Ji Eun** et al.; Sterne, Kessler, Goldstein &
Fox P.L.L.C., 1100 New York Avenue, NW, Washington,
DC 20005 (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,

(54) Title: MODIFIED PRODUCER CELLS FOR EXTRACELLULAR VESICLE PRODUCTION

(57) Abstract: The present disclosure provides methods of producing extracellular vesicles and methods of increasing extracellular vesicle production from producer cells, which exhibit a reduced gene and/or protein function in a cholesterol biosynthetic pathway. Also provided are cell compositions having a reduced gene and/or protein function in a cholesterol biosynthetic pathway. Reducing gene and/or protein function in a cholesterol biosynthetic pathway increases the yield and production of extracellular vesicles from the producer cells.

