



(51) International Patent Classification:
C12N 15/85 (2006.01) A61K 35/17 (2015.01)

(21) International Application Number:
PCT/US2023/072042

(22) International Filing Date:
10 August 2023 (10.08.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/397,067 11 August 2022 (11.08.2022) US
63/408,228 20 September 2022 (20.09.2022) US
63/425,174 14 November 2022 (14.11.2022) US

(71) Applicant: MEDISIX THERAPEUTICS, INC. [US/SG];
11 Biopolis Way, #05-08/09, Helios 138667 (SG).

(72) Inventors: CAMPANA, Dario; 11 Biopolis Way,
#05-08/09, Helios 138667 (SG). TAN, Ying Xim; 11
Biopolis Way, #05-08/09, Helios 138667 (SG). WONG,
Alex Xing Fah; 11 Biopolis Way, #05-08/09, Helios 138667
(SG). ZHENG, Simin; 11 Biopolis Way, #05-08/09, Helios
138667 (SG).

(74) Agent: UPRIGHT, Nicholas; Wilson Sonsini Goodrich
& Rosati, 650 Page Mill Road, Palo Alto, California
94304-1050 (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: ENGINEERED IMMUNE CELLS EXPRESSING A CAR AND A PLURALITY OF PROTEIN EXPRESSION BLOCK-
ERS AND USES THEREOF

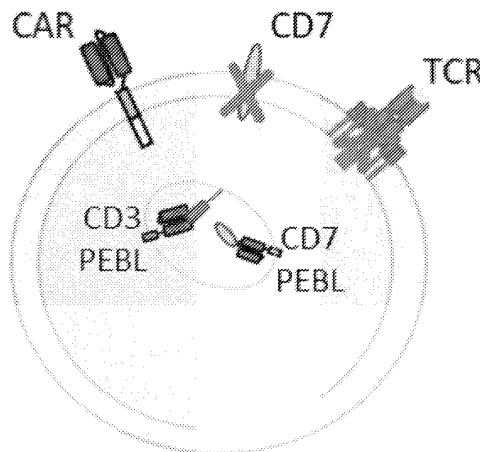


FIG. 1

(57) Abstract: The present invention provides one or more expression vectors encoding one or more of an anti-CD7 chimeric antigen receptor (CAR), an anti-CD7 protein expression blocker, a kill gene or a suicide gene, and an anti-CD3 protein expression blocker. Also provided are immune cells comprising the one or more expression vectors. Also provided are methods of producing such one or more expression vectors or immune cells. Also provided are methods of using such one or more expression vectors or immune cells for treating cancer while reducing symptoms of Graft-versus-host disease (GvHD).

[Continued on next page]



SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

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