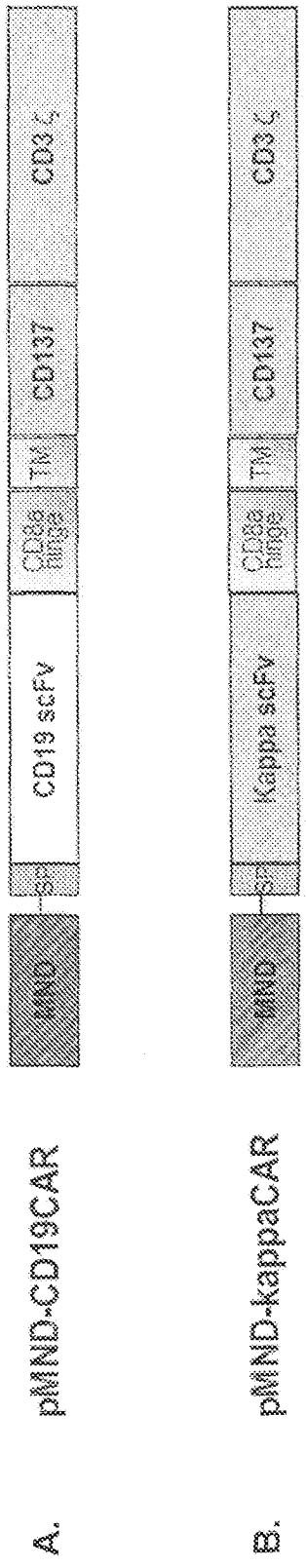
FIG. 1


A.
pMND-CD19CAR
MND
SP
CD19 scFv
CD8α hinge
TM
CD137
CD3ζ
B.
pMND-kappaCAR
MND
SP
Kappa scFv
CD8α hinge
TM
CD137
CD3ζ

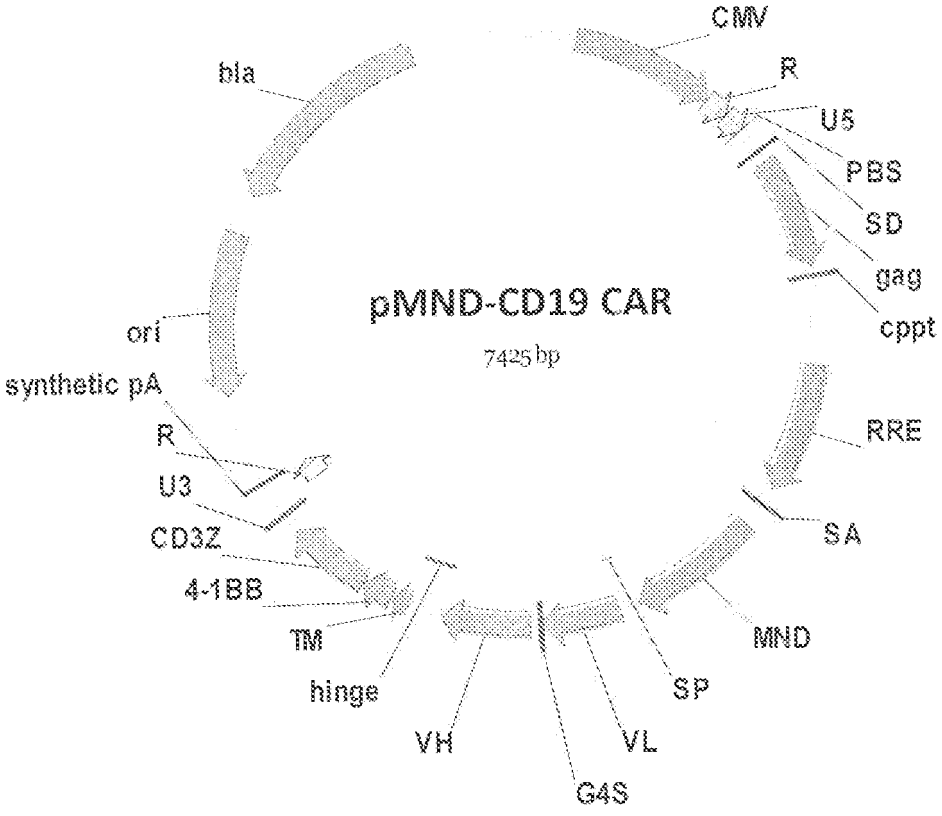

pMND-CD19 CAR
7425 bp
CMV
R
U5
PBS
SD
gag
cppt
RRE
SA
MND
SP
VL
G4S
VH
hinge
TM
4-1BB
CD3Z
U3
R
synthetic pA
ori
bla

FIG. 2

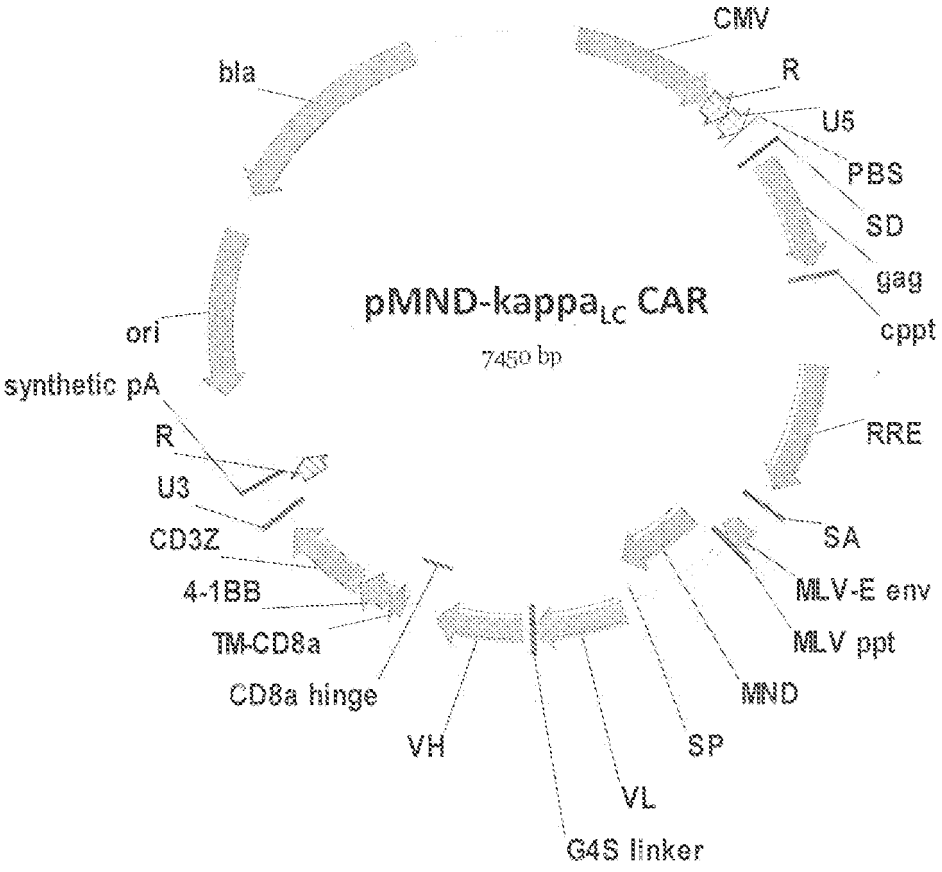

pMND-kappa$_{LC}$ CAR
7450 bp
CMV
R
U5
PBS
SD
gag
cppt
RRE
SA
MLV-E env
MLV ppt
MND
SP
VL
G4S linker
VH
CD8a hinge
TM-CD8a
4-1BB
CD3Z
U3
R
synthetic pA
ori
bla

FIG. 3

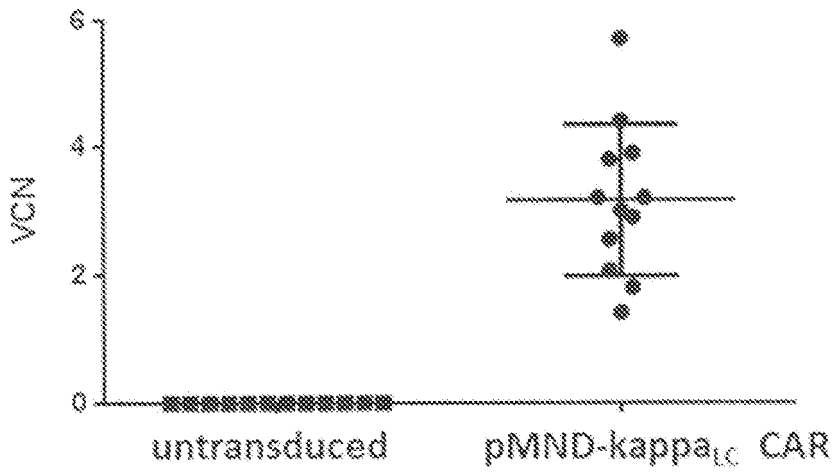


FIG. 4

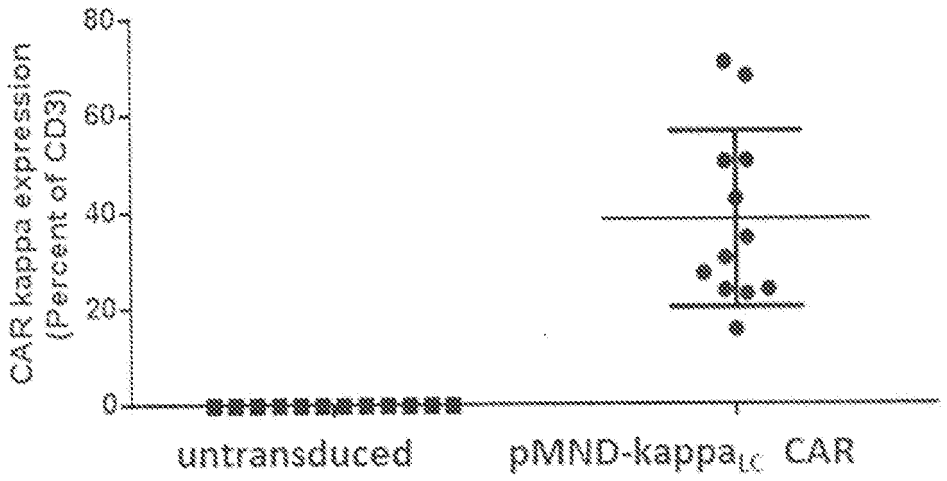

CAR kappa expression
(Percent of CD3)
80
60
40
20
0
untransduced
pMND-kappa$_{LC}$ CAR

FIG. 5

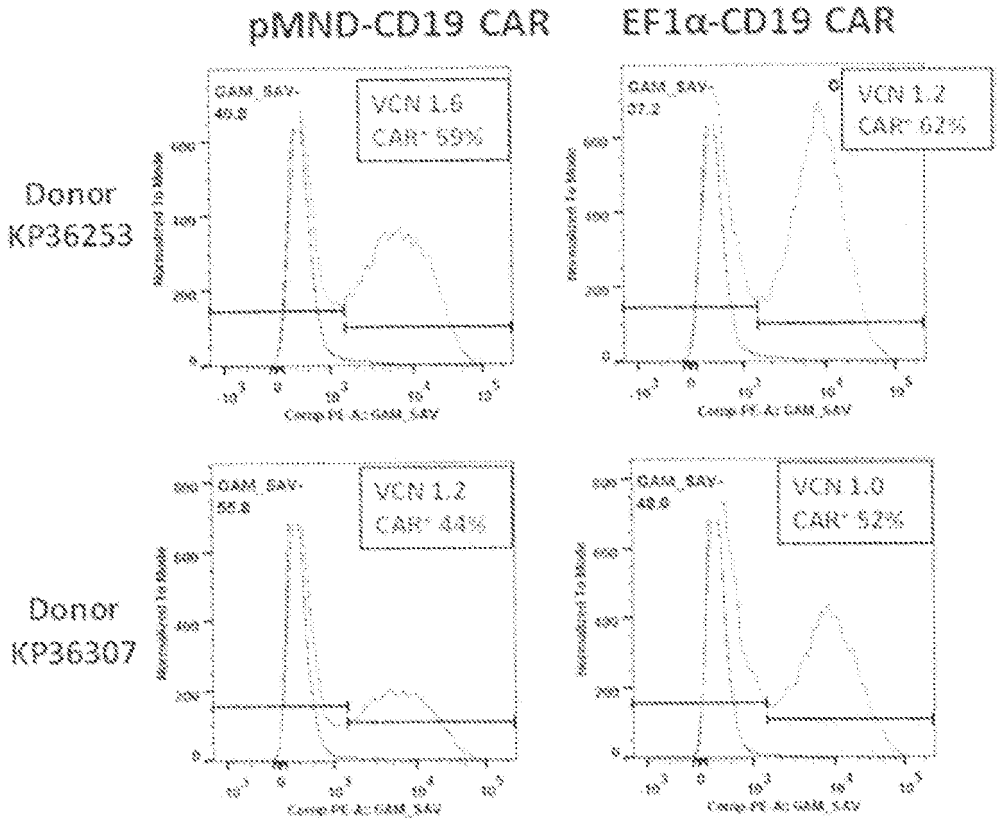

pMND-CD19 CAR
EF1α-CD19 CAR
Donor KP36253
Donor KP36307
VCN 1.6
CAR+ 59%
VCN 1.2
CAR+ 62%
VCN 1.2
CAR+ 44%
VCN 1.0
CAR+ 52%

FIG. 6

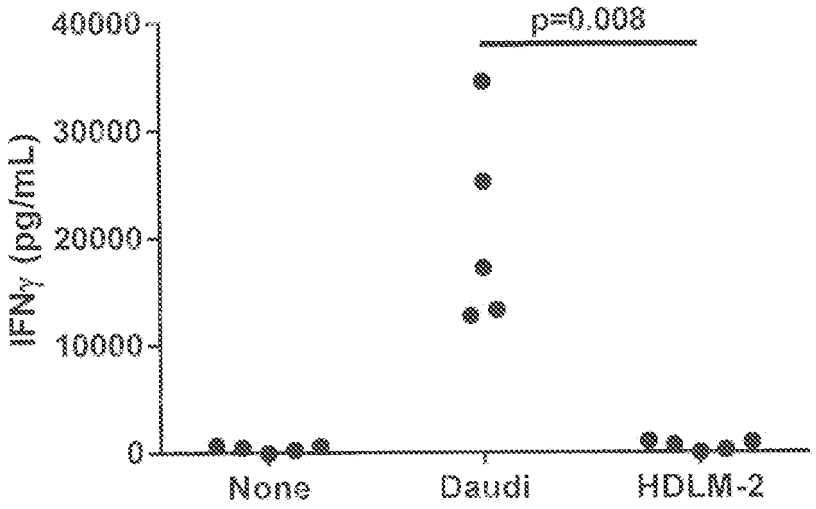


FIG. 7

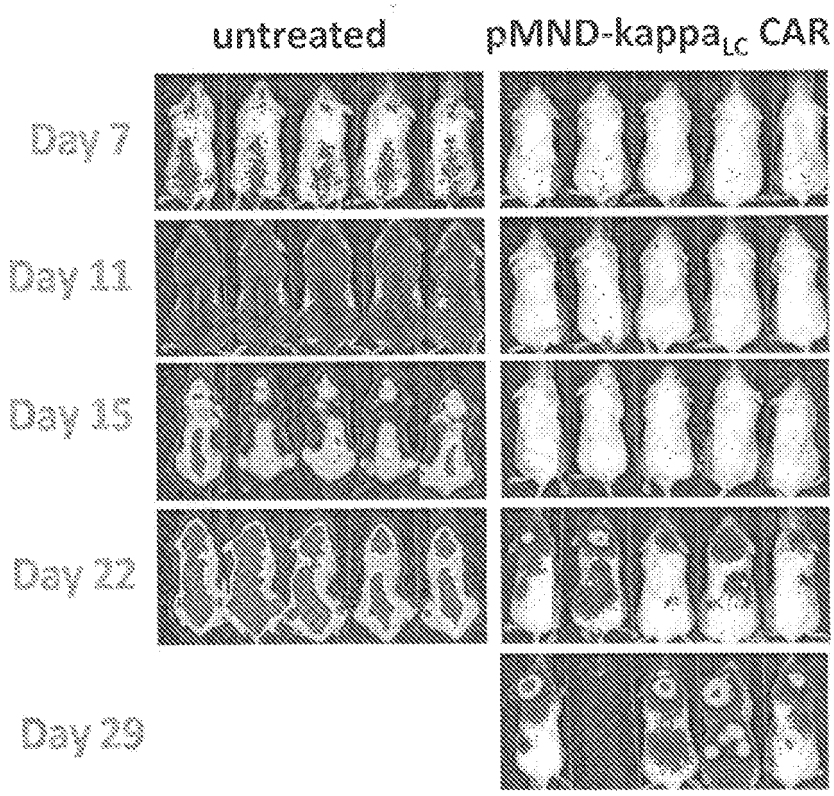


FIG. 8

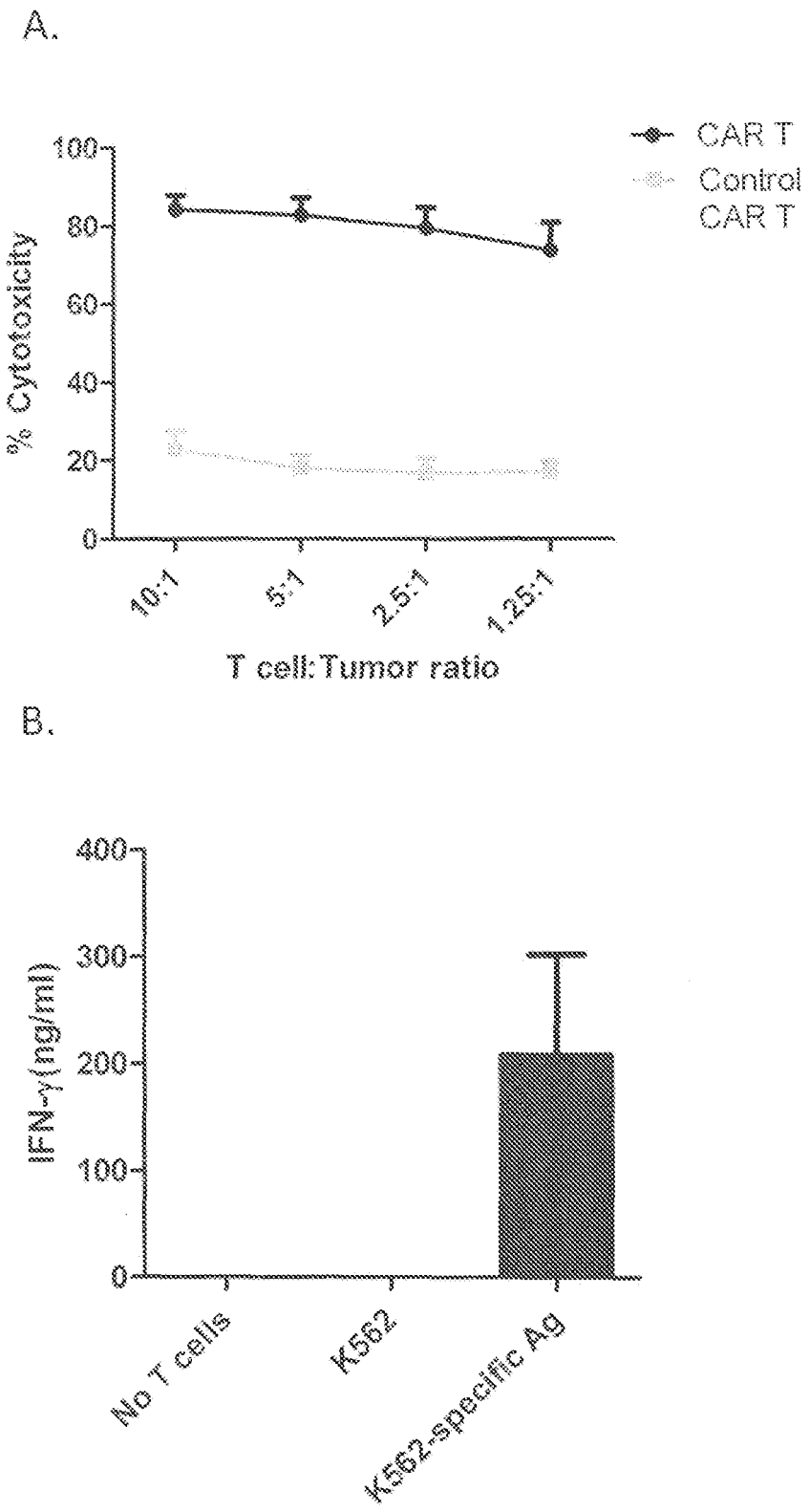

A.
CAR T
Control CAR T
% Cytotoxicity
100
80
60
40
20
0
10:1
5:1
2.5:1
1.25:1
T cell:Tumor ratio
B.
IFN-γ(ng/ml)
400
300
200
100
0
No T cells
K562
K562-specific Ag

FIG. 9