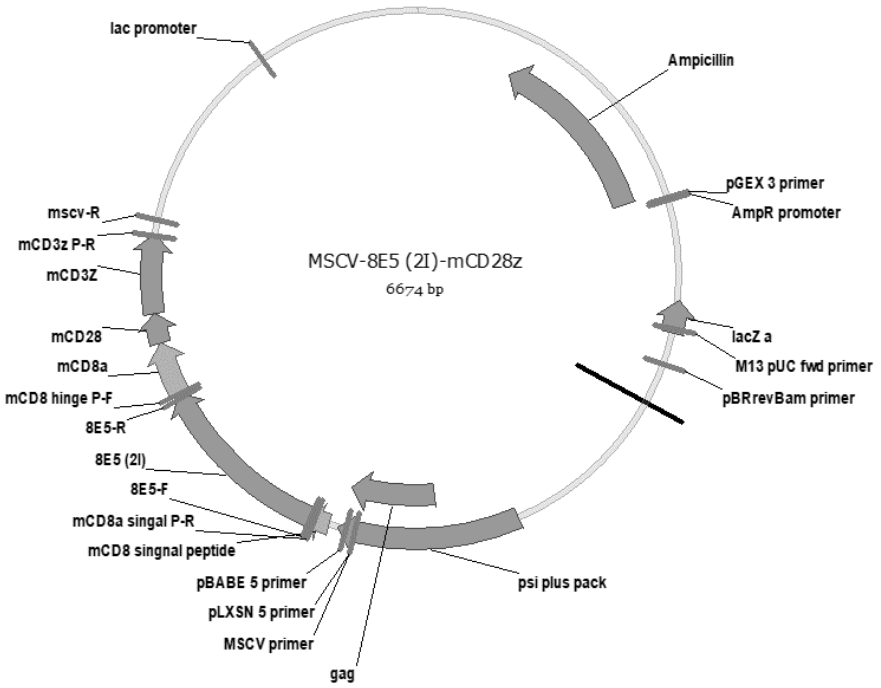

lac promoter
Ampicillin
pGEX 3 primer
AmpR promoter
mscv-R
mCD3z P-R
mCD3Z
MSCV-8E5 (2I)-mCD28z
6674 bp
mCD28
mCD8a
mCD8 hinge P-F
8E5-R
8E5 (2I)
8E5-F
mCD8a singal P-R
mCD8 singnal peptide
lacZ a
M13 pUC fwd primer
pBRrevBam primer
pBABE 5 primer
pLXSN 5 primer
MSCV primer
gag
psi plus pack

Fig. 1A

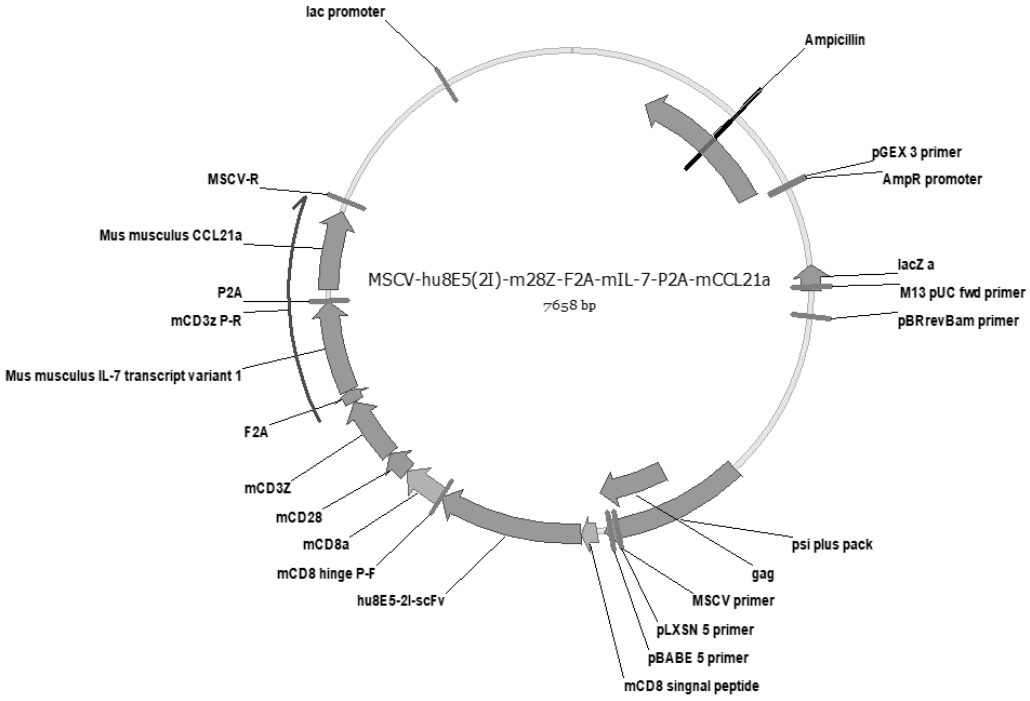

lac promoter
Ampicillin
pGEX 3 primer
AmpR promoter
MSCV-R
Mus musculus CCL21a
P2A
mCD3z P-R
Mus musculus IL-7 transcript variant 1
F2A
mCD3Z
mCD28
mCD8a
mCD8 hinge P-F
hu8E5-2I-scFv
MSCV-hu8E5(2I)-m28Z-F2A-mIL-7-P2A-mCCL21a
7658 bp
lacZ a
M13 pUC fwd primer
pBRrevBam primer
psi plus pack
gag
MSCV primer
pLXSN 5 primer
pBABE 5 primer
mCD8 singnal peptide

Fig. 1B

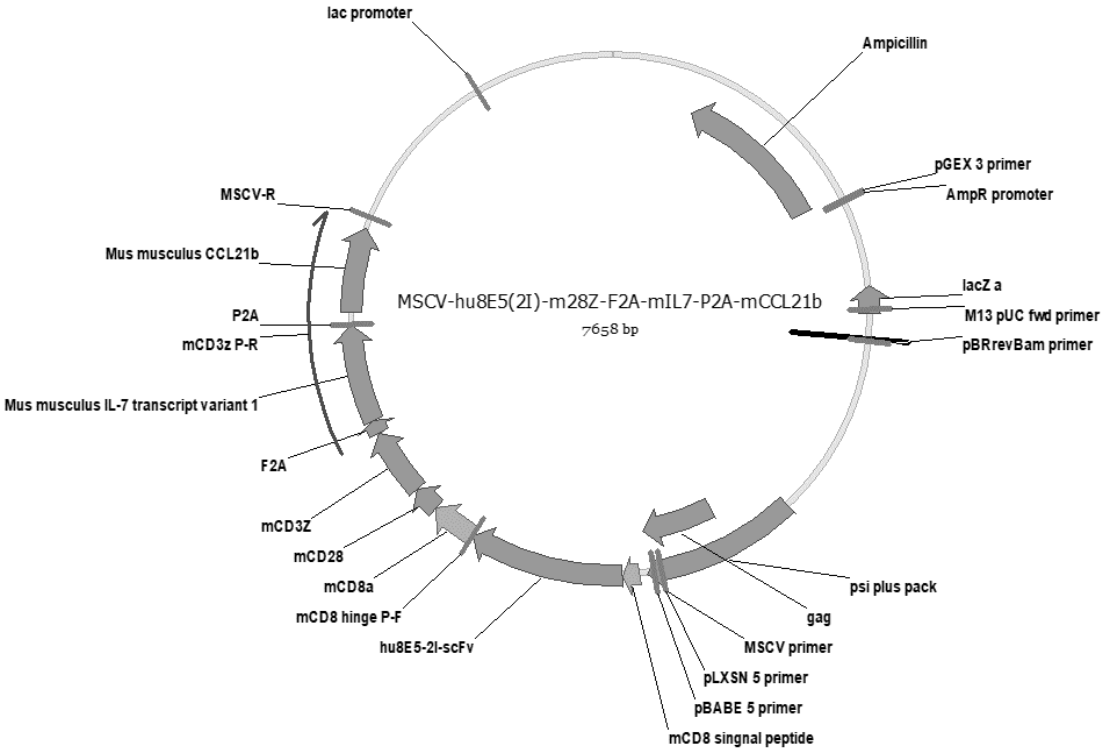

lac promoter
Ampicillin
pGEX 3 primer
AmpR promoter
MSCV-R
Mus musculus CCL21b
P2A
mCD3z P-R
Mus musculus IL-7 transcript variant 1
F2A
mCD3Z
mCD28
mCD8a
mCD8 hinge P-F
hu8E5-2I-scFv
MSCV-hu8E5(2I)-m28Z-F2A-mIL7-P2A-mCCL21b
7658 bp
lacZ a
M13 pUC fwd primer
pBRrevBam primer
psi plus pack
gag
MSCV primer
pLXSN 5 primer
pBABE 5 primer
mCD8 singnal peptide

Fig. 1C

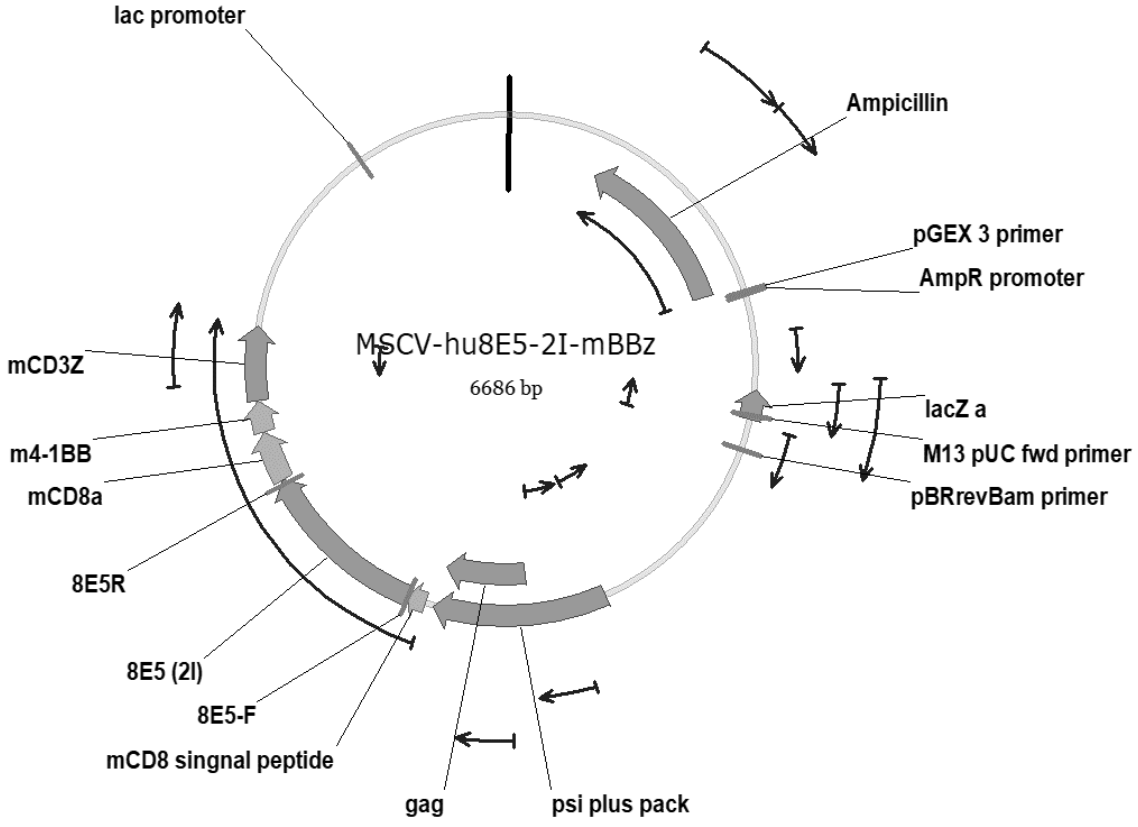

lac promoter
Ampicillin
pGEX 3 primer
AmpR promoter
MSCV-hu8E5-2I-mBBz
6686 bp
mCD3Z
m4-1BB
mCD8a
8E5R
8E5 (2I)
8E5-F
mCD8 singnal peptide
gag
psi plus pack
lacZ a
M13 pUC fwd primer
pBRrevBam primer

Fig. 1D

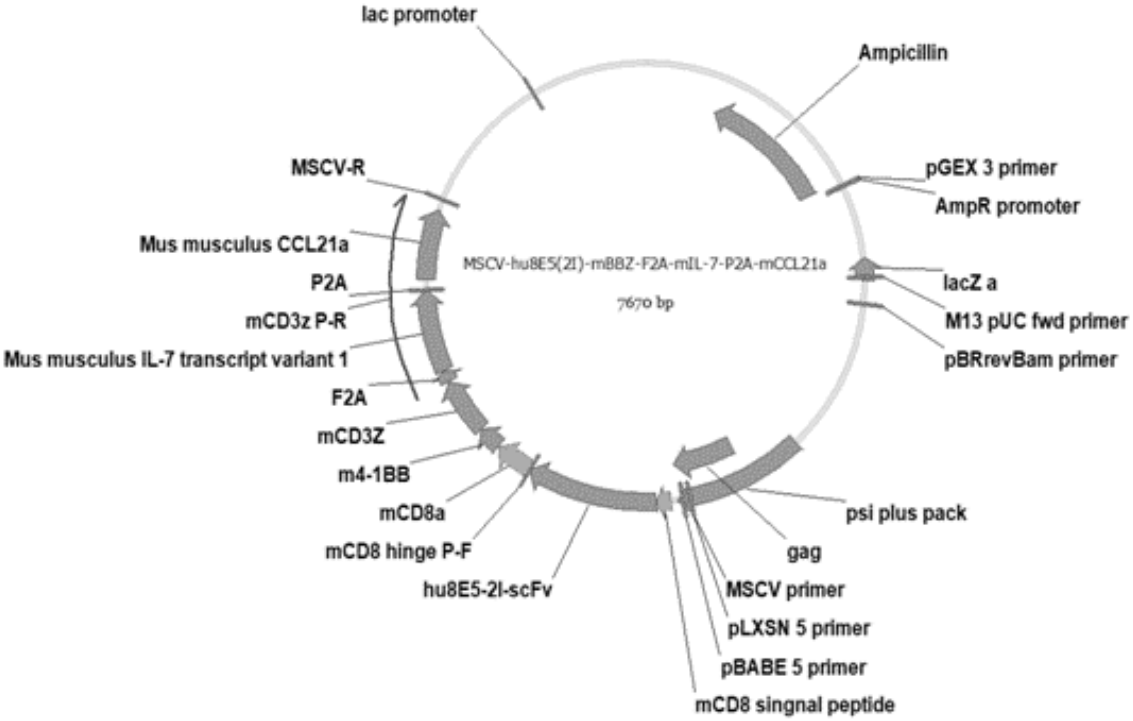

lac promoter
Ampicillin
MSCV-R
pGEX 3 primer
AmpR promoter
Mus musculus CCL21a
MSCV-hu8E5(2I)-mBBZ-F2A-mIL-7-P2A-mCCL21a
7670 bp
P2A
lacZ a
mCD3z P-R
M13 pUC fwd primer
Mus musculus IL-7 transcript variant 1
pBRrevBam primer
F2A
mCD3Z
m4-1BB
psi plus pack
mCD8a
gag
mCD8 hinge P-F
MSCV primer
hu8E5-2I-scFv
pLXSN 5 primer
pBABE 5 primer
mCD8 singnal peptide

Fig. 1E

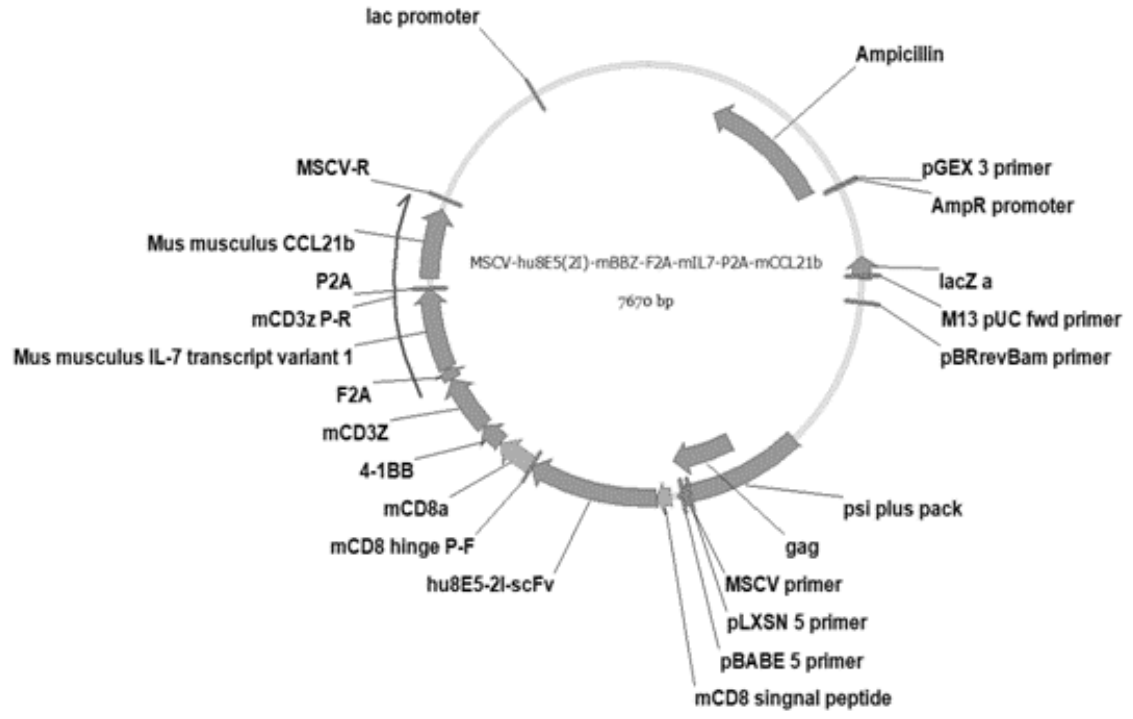
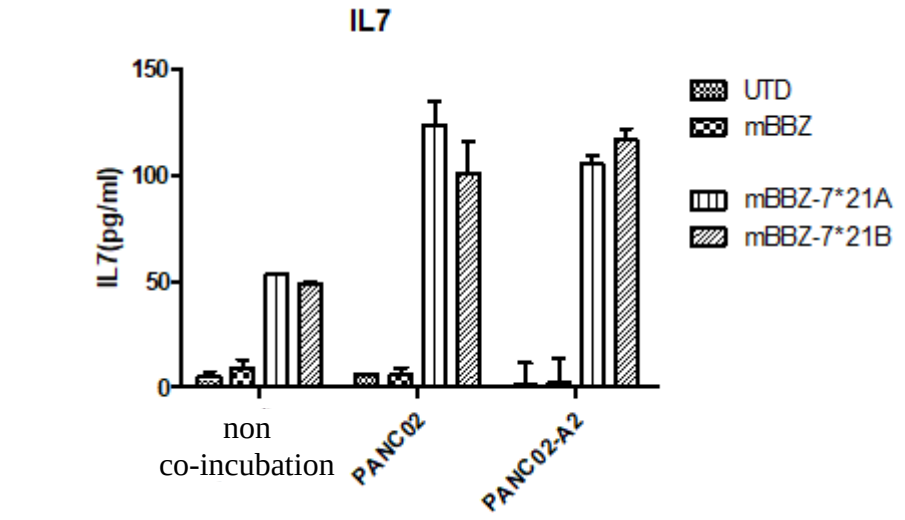

lac promoter
Ampicillin
MSCV-R
pGEX 3 primer
AmpR promoter
Mus musculus CCL21b
MSCV-hu8E5(2I)-mBBZ-F2A-mIL7-P2A-mCCL21b
7670 bp
P2A
lacZ a
mCD3z P-R
M13 pUC fwd primer
Mus musculus IL-7 transcript variant 1
pBRrevBam primer
F2A
mCD3Z
4-1BB
psi plus pack
mCD8a
gag
mCD8 hinge P-F
MSCV primer
hu8E5-2I-scFv
pLXSN 5 primer
pBABE 5 primer
mCD8 singnal peptide

Fig. 1F


IL7
IL7(pg/ml)
150
100
50
0
UTD
mBBZ
mBBZ-7*21A
mBBZ-7*21B
non
co-incubation
PANC02
PANC02-A2

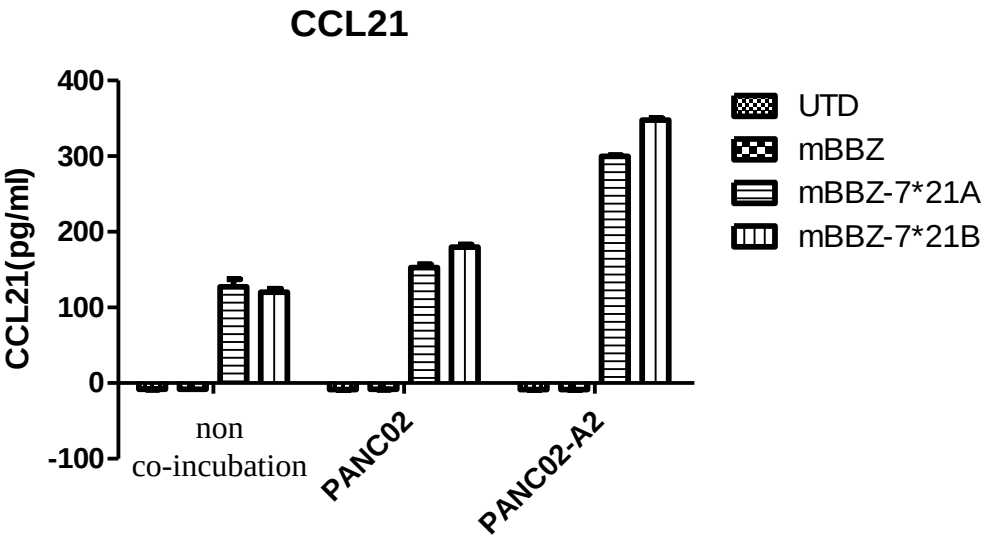

CCL21
CCL21(pg/ml)
400
300
200
100
0
-100
UTD
mBBZ
mBBZ-7*21A
mBBZ-7*21B
non
co-incubation
PANC02
PANC02-A2

Fig. 2

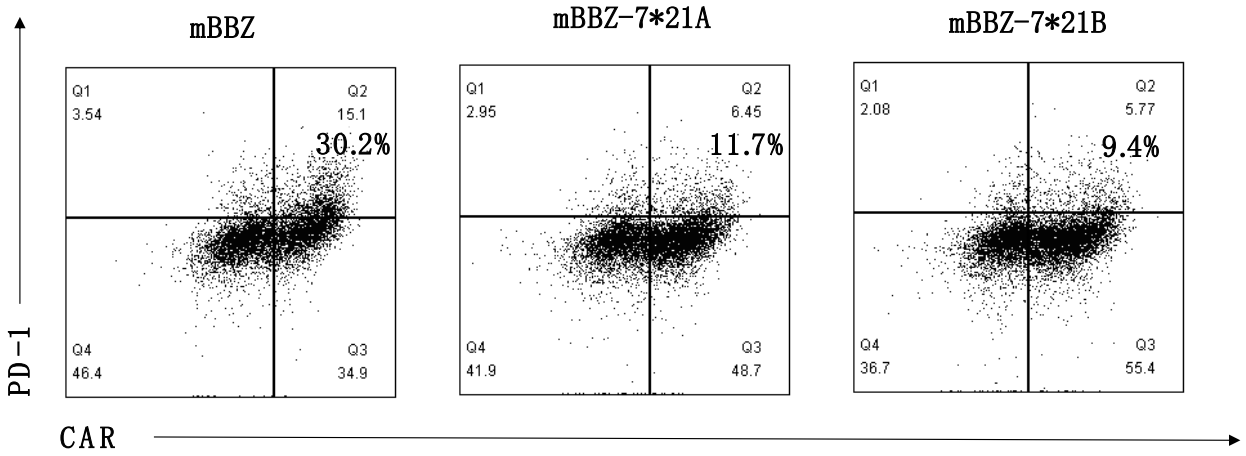

mBBZ
mBBZ-7*21A
mBBZ-7*21B
Q1
3.54
Q2
15.1
30.2%
Q4
46.4
Q3
34.9
Q1
2.95
Q2
6.45
11.7%
Q4
41.9
Q3
48.7
Q1
2.08
Q2
5.77
9.4%
Q4
36.7
Q3
55.4
PD-1
CAR

Fig. 3A

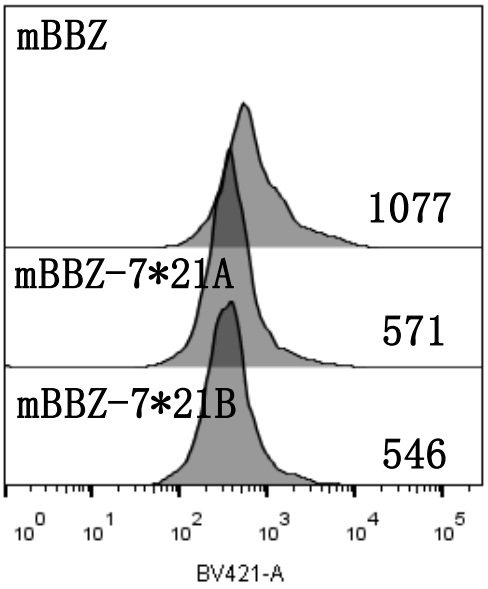

mBBZ
1077
mBBZ-7*21A
571
mBBZ-7*21B
546
10^0 10^1 10^2 10^3 10^4 10^5
BV421-A

Fig. 3B

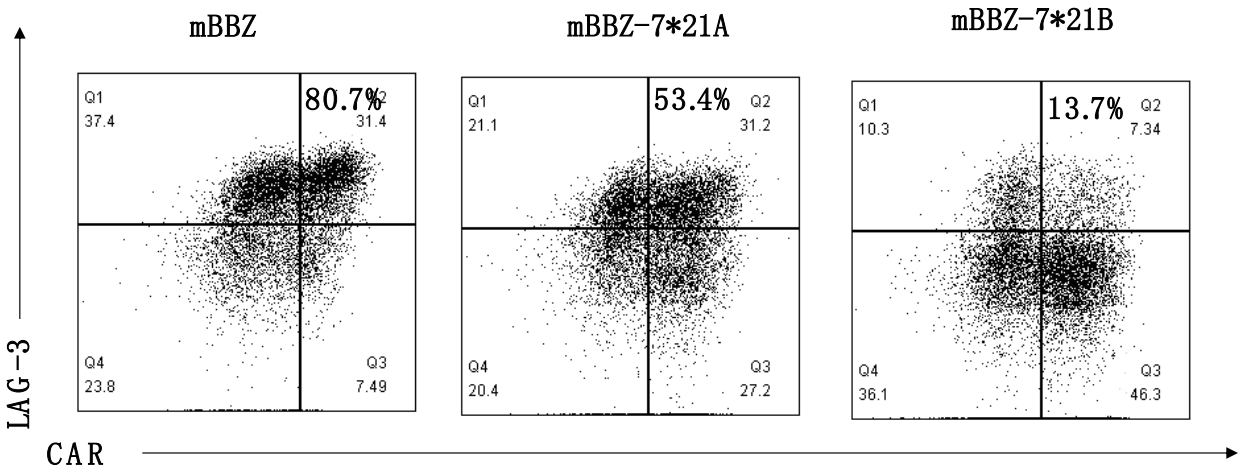

mBBZ
mBBZ-7*21A
mBBZ-7*21B
LAG-3
CAR
Q1
37.4
80.7%
Q2
31.4
Q4
23.8
Q3
7.49
Q1
21.1
53.4%
Q2
31.2
Q4
20.4
Q3
27.2
Q1
10.3
13.7%
Q2
7.34
Q4
36.1
Q3
46.3

Fig. 3C

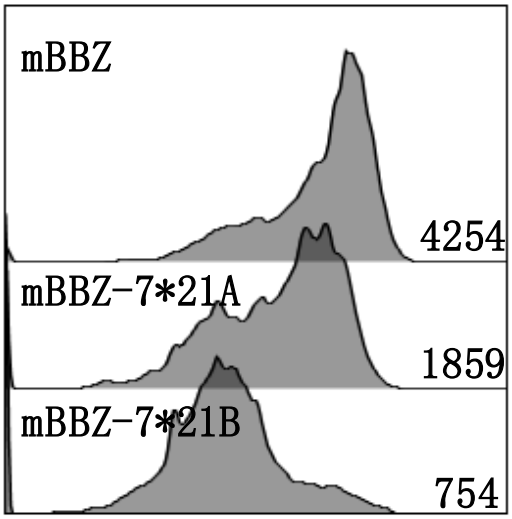

mBBZ
4254
mBBZ-7*21A
1859
mBBZ-7*21B
754

Fig. 3D

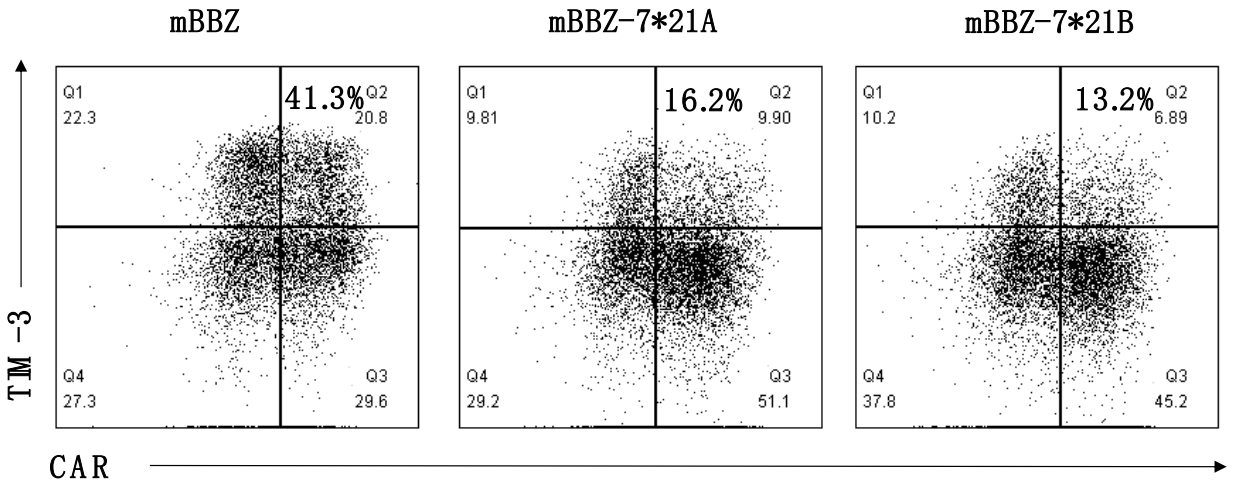

mBBZ
mBBZ-7*21A
mBBZ-7*21B
TM-3
CAR
Q1
22.3
41.3%
Q2
20.8
Q4
27.3
Q3
29.6
Q1
9.81
16.2%
Q2
9.90
Q4
29.2
Q3
51.1
Q1
10.2
13.2%
Q2
6.89
Q4
37.8
Q3
45.2

Fig. 3E

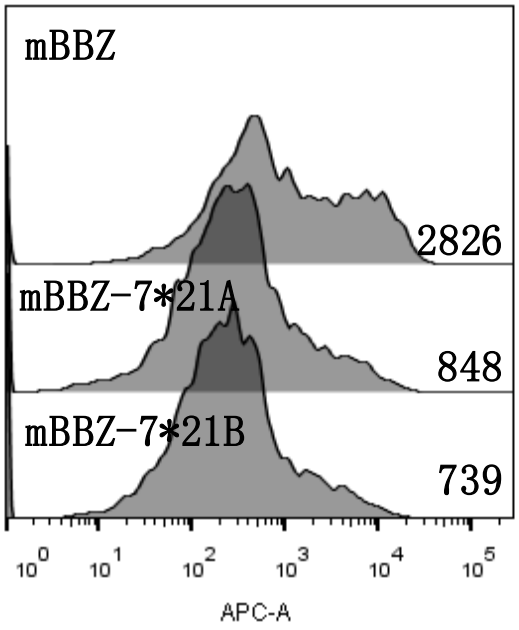

mBBZ
2826
mBBZ-7*21A
848
mBBZ-7*21B
739
10^0
10^1
10^2
10^3
10^4
10^5
APC-A

Fig. 3F

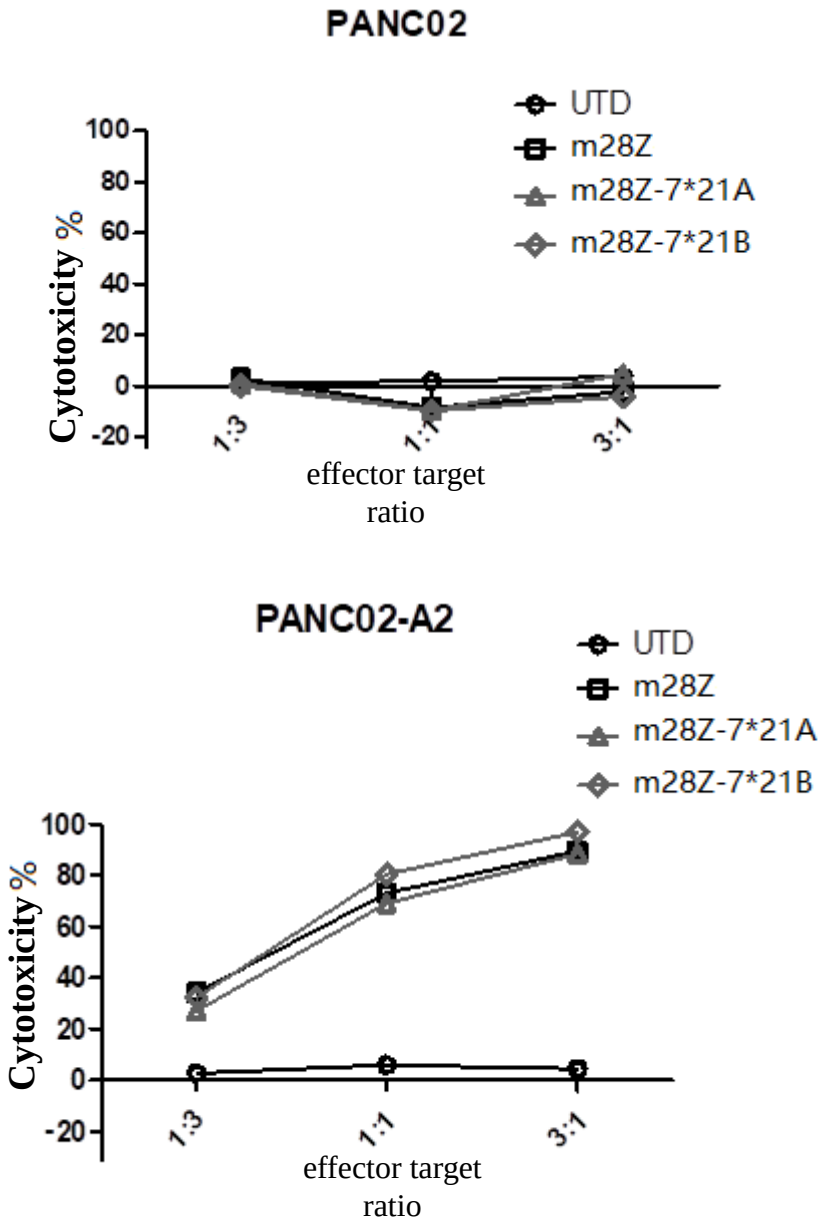

PANC02
UTD
m28Z
m28Z-7*21A
m28Z-7*21B
Cytotoxicity %
100
80
60
40
20
0
-20
1:3
1:1
3:1
effector target ratio
PANC02-A2
UTD
m28Z
m28Z-7*21A
m28Z-7*21B
Cytotoxicity %
100
80
60
40
20
0
-20
1:3
1:1
3:1
effector target ratio

Fig. 4A

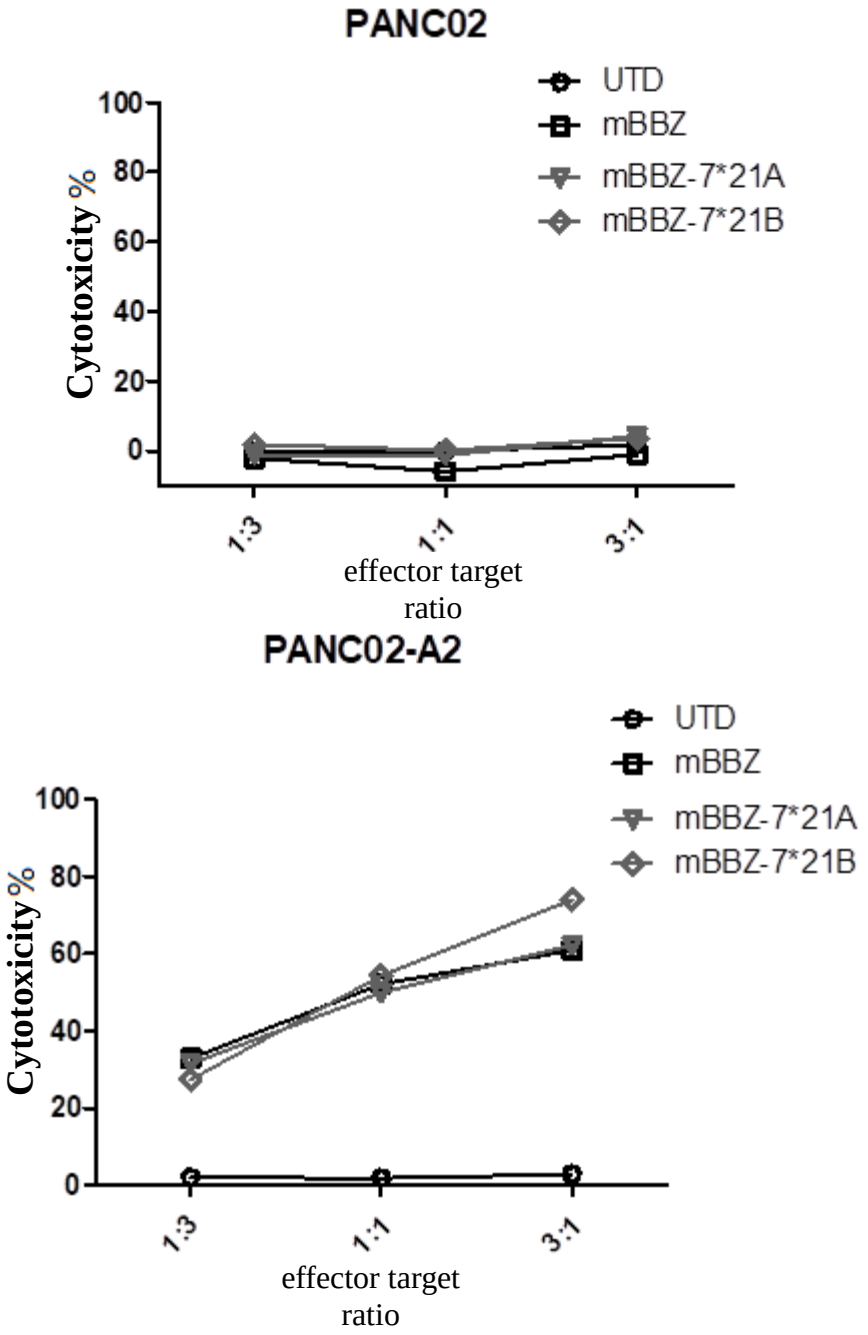

PANC02
UTD
mBBZ
mBBZ-7*21A
mBBZ-7*21B
Cytotoxicity %
100
80
60
40
20
0
1:3
1:1
3:1
effector target ratio
PANC02-A2
UTD
mBBZ
mBBZ-7*21A
mBBZ-7*21B
Cytotoxicity %
100
80
60
40
20
0
1:3
1:1
3:1
effector target ratio

Fig. 4B

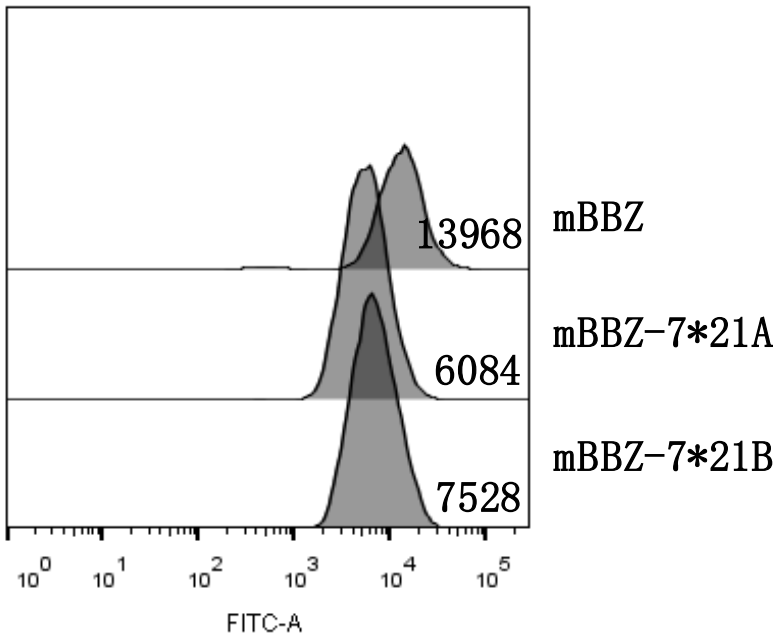

13968
mBBZ
6084
mBBZ-7*21A
7528
mBBZ-7*21B
10^0 10^1 10^2 10^3 10^4 10^5
FITC-A

Fig. 5

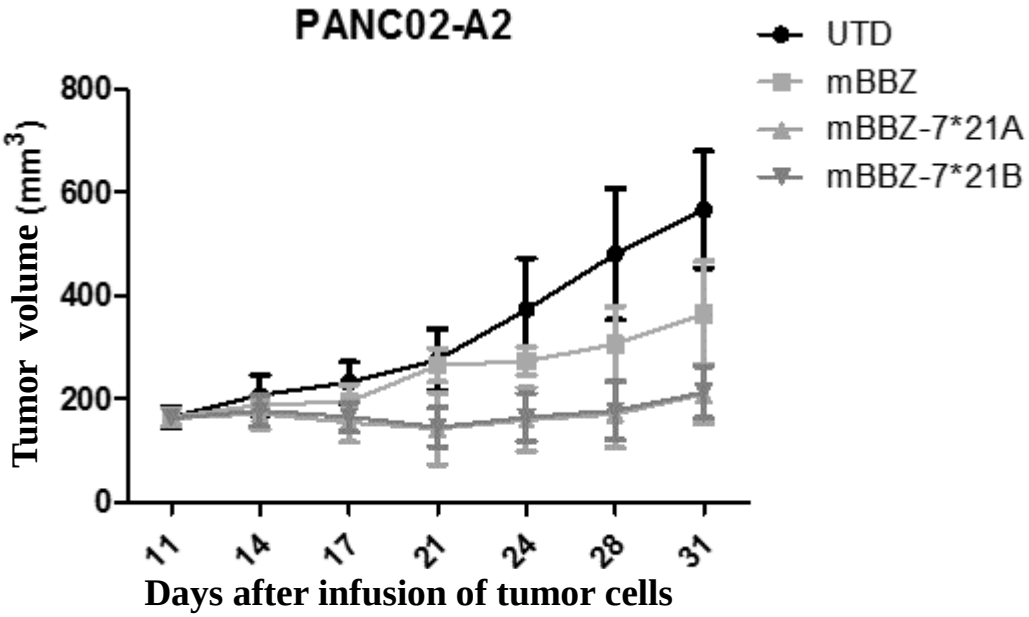

PANC02-A2
UTD
mBBZ
mBBZ-7*21A
mBBZ-7*21B
Tumor volume (mm3)
800
600
400
200
0
11
14
17
21
24
28
31
Days after infusion of tumor cells

Fig. 6

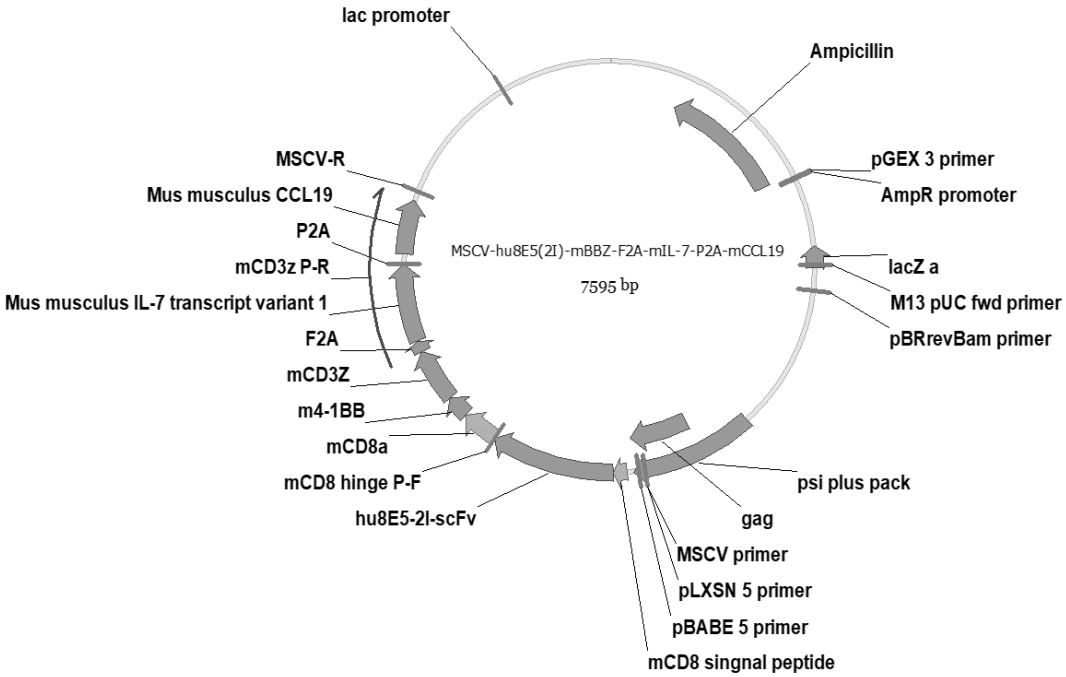

lac promoter
Ampicillin
MSCV-R
Mus musculus CCL19
P2A
mCD3z P-R
Mus musculus IL-7 transcript variant 1
F2A
mCD3Z
m4-1BB
mCD8a
mCD8 hinge P-F
hu8E5-2l-scFv
MSCV-hu8E5(2I)-mBBZ-F2A-mIL-7-P2A-mCCL19
7595 bp
pGEX 3 primer
AmpR promoter
lacZ a
M13 pUC fwd primer
pBRrevBam primer
psi plus pack
gag
MSCV primer
pLXSN 5 primer
pBABE 5 primer
mCD8 singnal peptide

Fig. 7

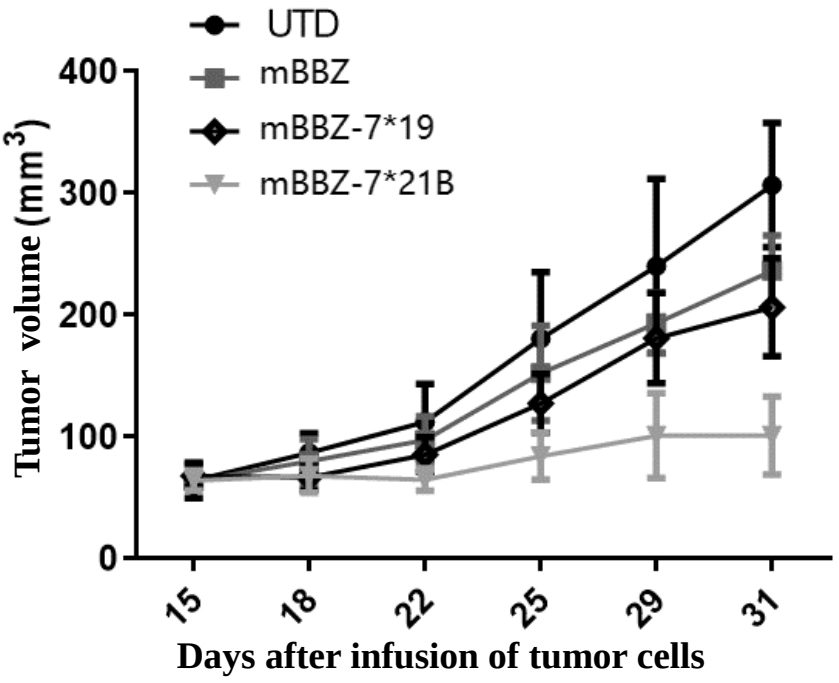

UTD
mBBZ
mBBZ-7*19
mBBZ-7*21B
Tumor volume (mm3)
400
300
200
100
0
15
18
22
25
29
31
Days after infusion of tumor cells

Fig. 8A

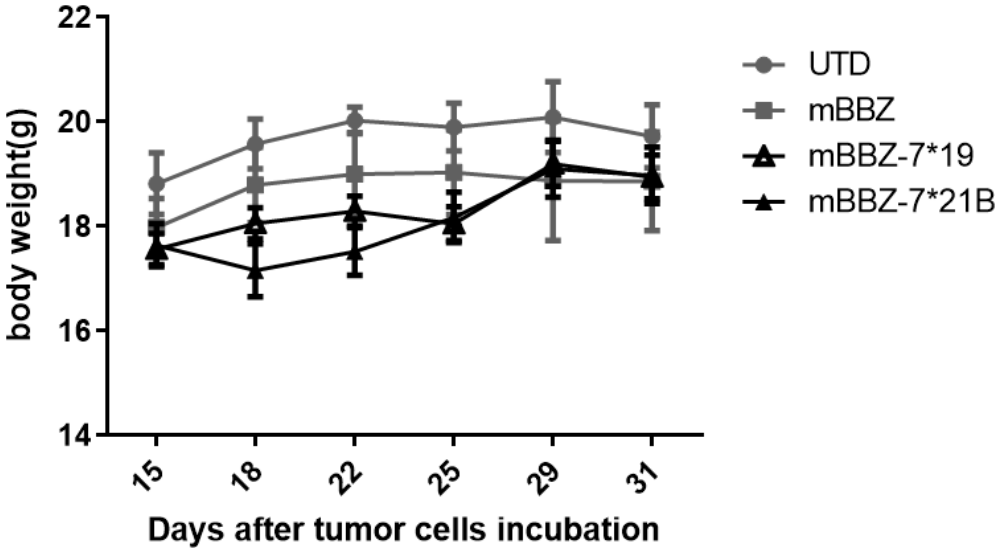

22
20
18
16
14
body weight(g)
15
18
22
25
29
31
Days after tumor cells incubation
UTD
mBBZ
mBBZ-7*19
mBBZ-7*21B

Fig. 8B

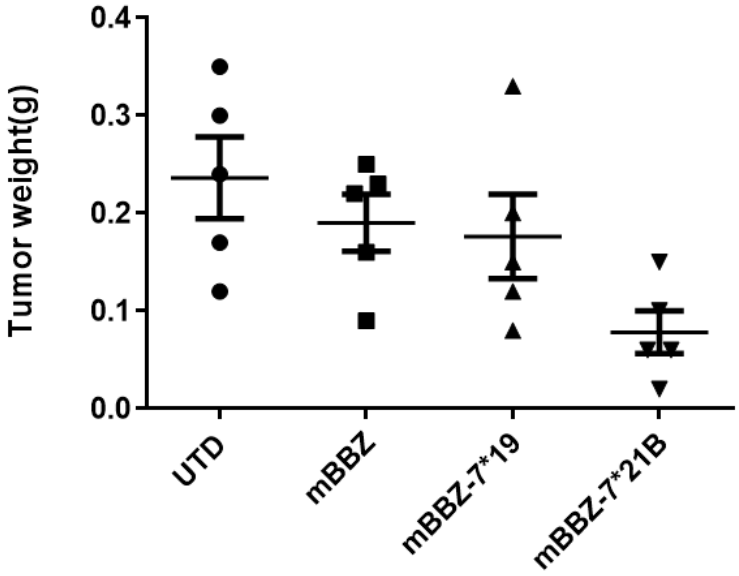

0.4
0.3
0.2
0.1
0.0
Tumor weight(g)
UTD
mBBZ
mBBZ-7*19
mBBZ-7*21B

Fig. 8C

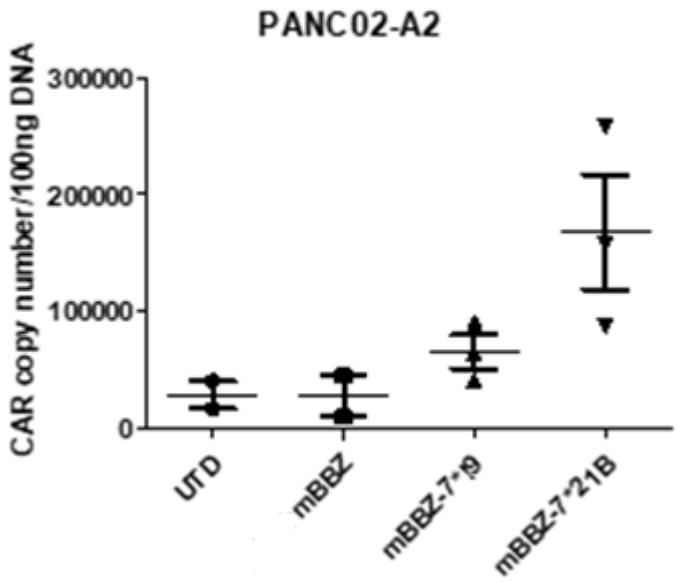

PANC02-A2
CAR copy number/100ng DNA
300000
200000
100000
0
UTD
mBBZ
mBBZ-7*19
mBBZ-7*21B

Fig. 8D

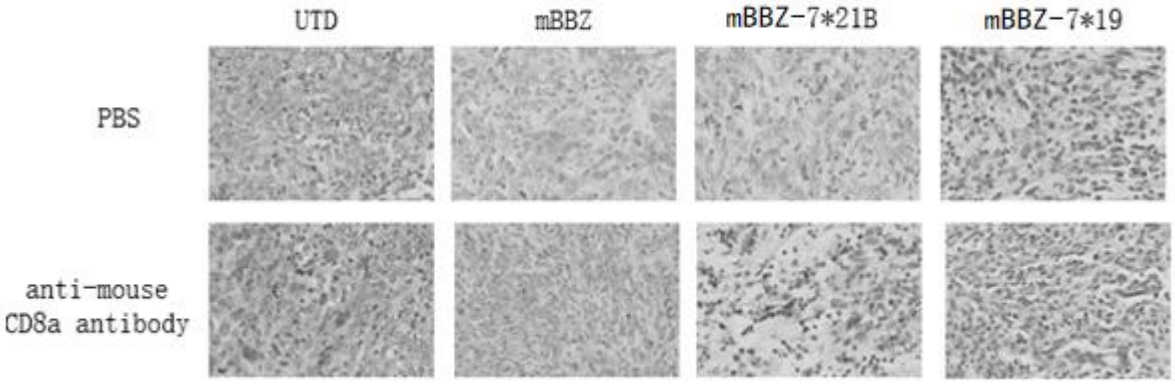

UTD
mBBZ
mBBZ-7*21B
mBBZ-7*19
PBS
anti-mouse
CD8a antibody

Fig. 8E

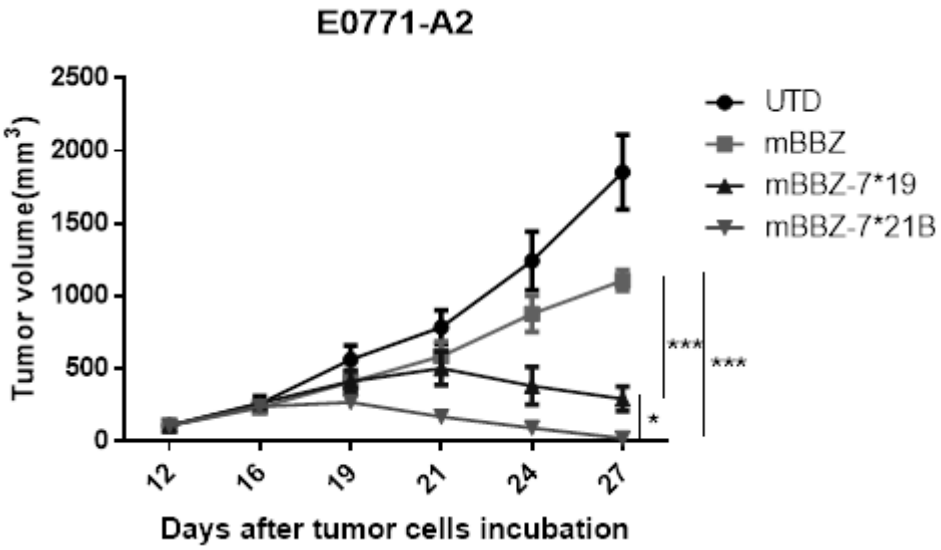

E0771-A2
Tumor volume(mm3)
2500
2000
1500
1000
500
0
12
16
19
21
24
27
Days after tumor cells incubation
UTD
mBBZ
mBBZ-7*19
mBBZ-7*21B
***
***
*

Fig. 9A

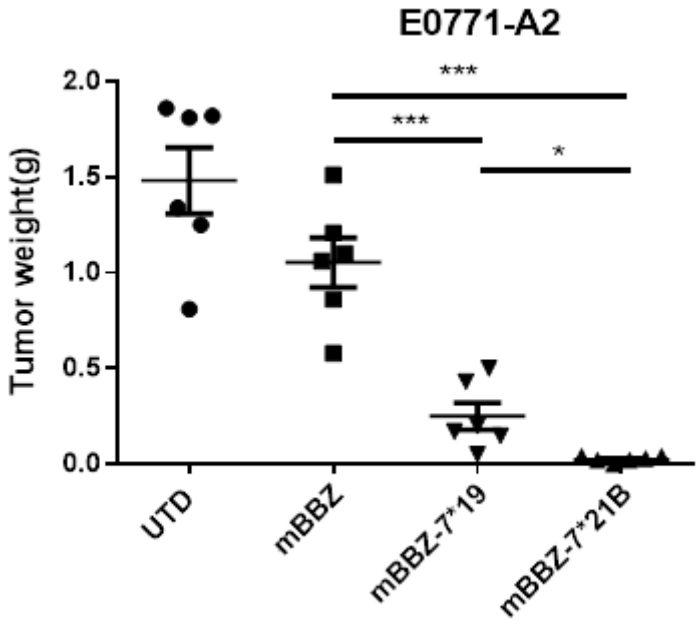

E0771-A2
Tumor weight(g)
2.0
1.5
1.0
0.5
0.0
***
***
*
UTD
mBBZ
mBBZ-7*19
mBBZ-7*21B

Fig. 9B

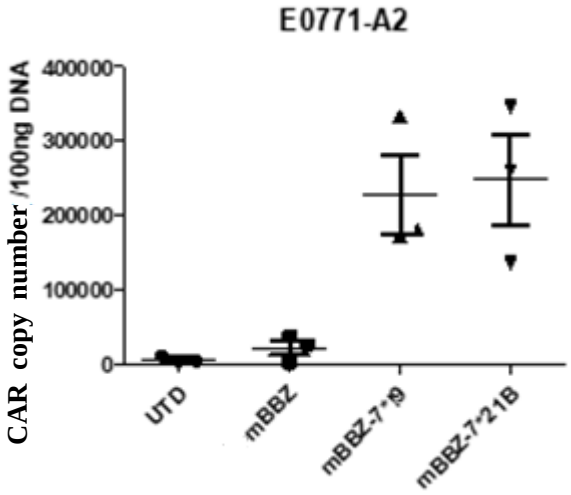

E0771-A2
CAR copy number /100ng DNA
400000
300000
200000
100000
0
UTD
mBBZ
mBBZ-7*9
mBBZ-7*21B

Fig. 9C

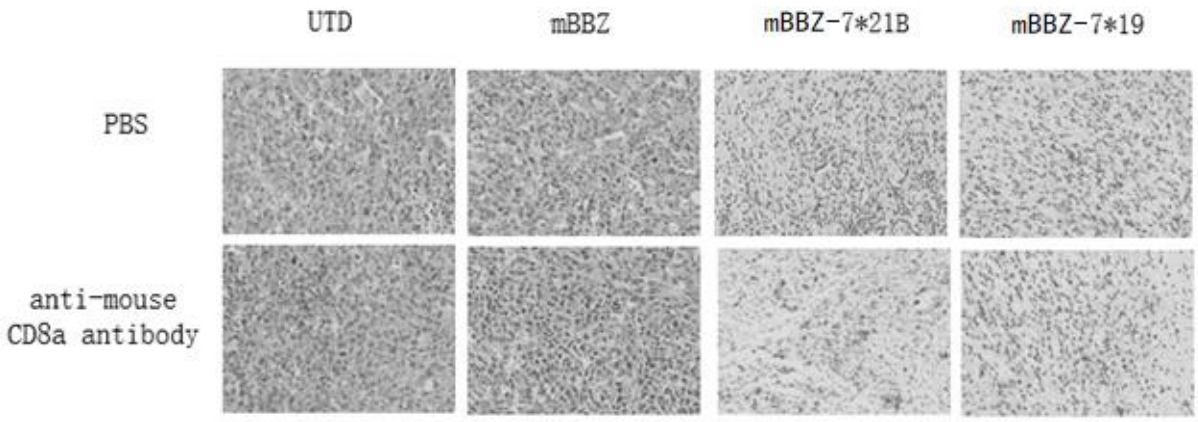

UTD
mBBZ
mBBZ-7*21B
mBBZ-7*19
PBS
anti-mouse
CD8a antibody

Fig. 9D

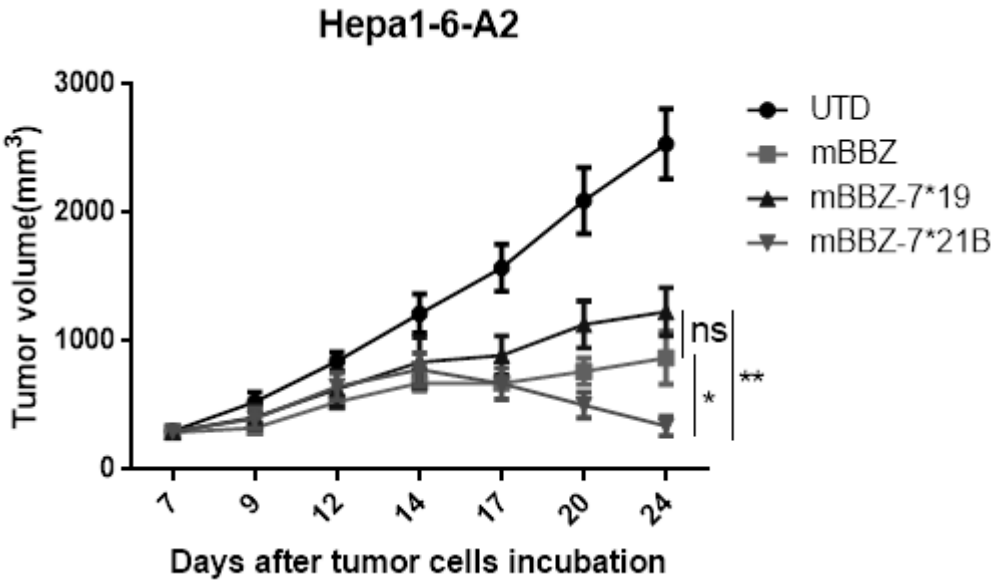


Fig. 10A

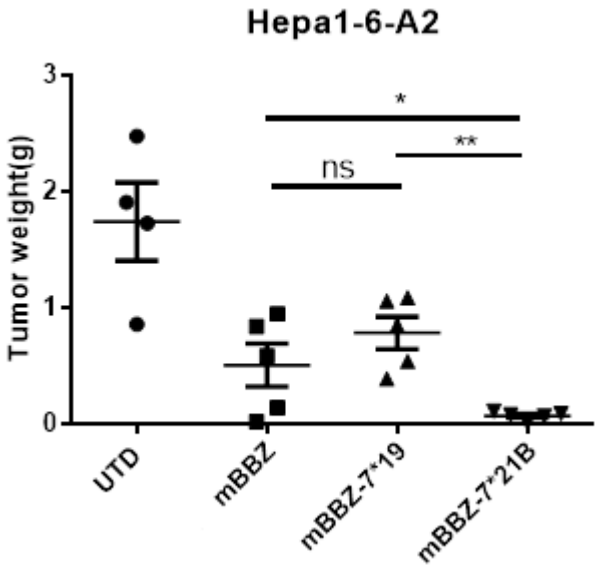


Fig. 10B

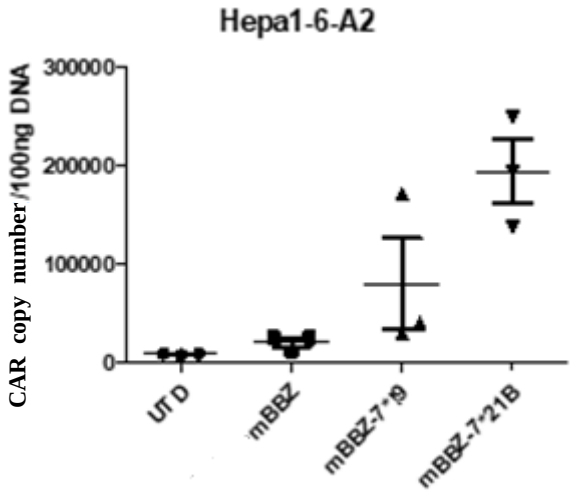


Fig. 10C

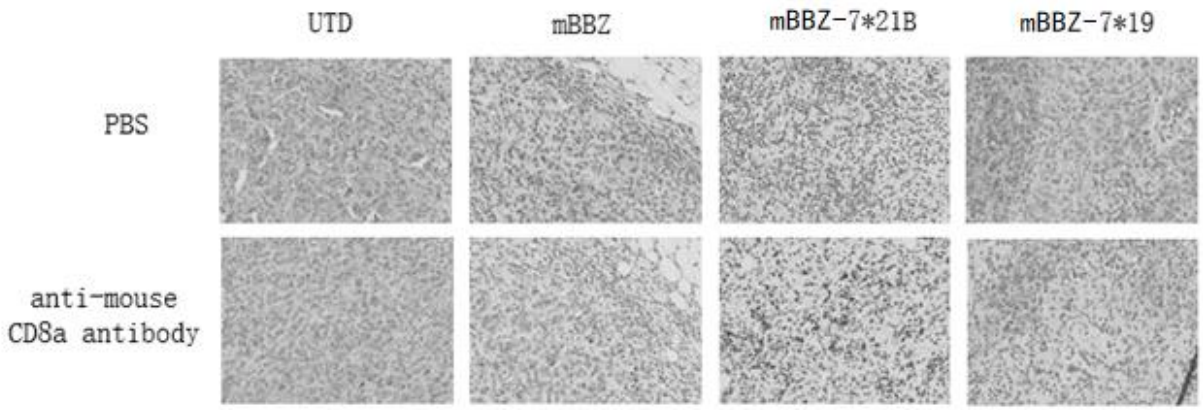


Fig. 10D

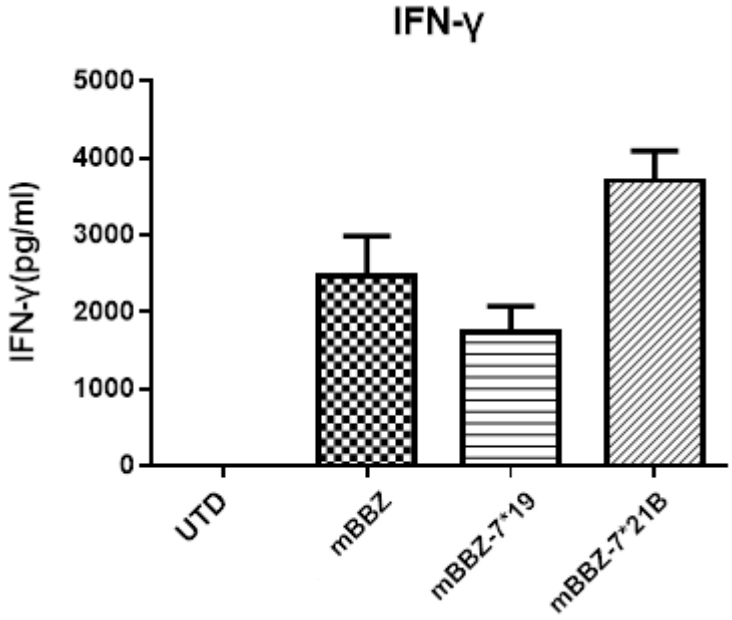


Fig. 11

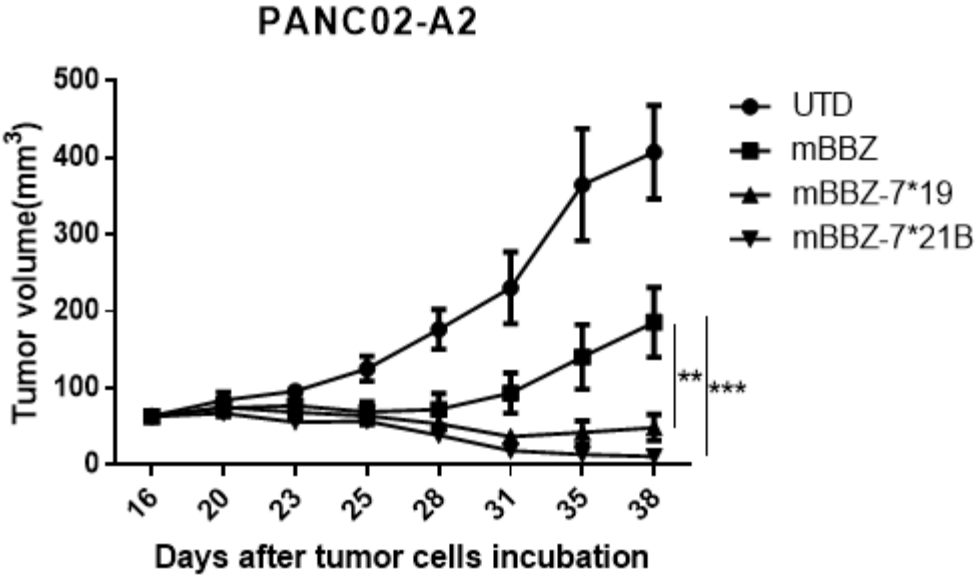


Fig. 12A

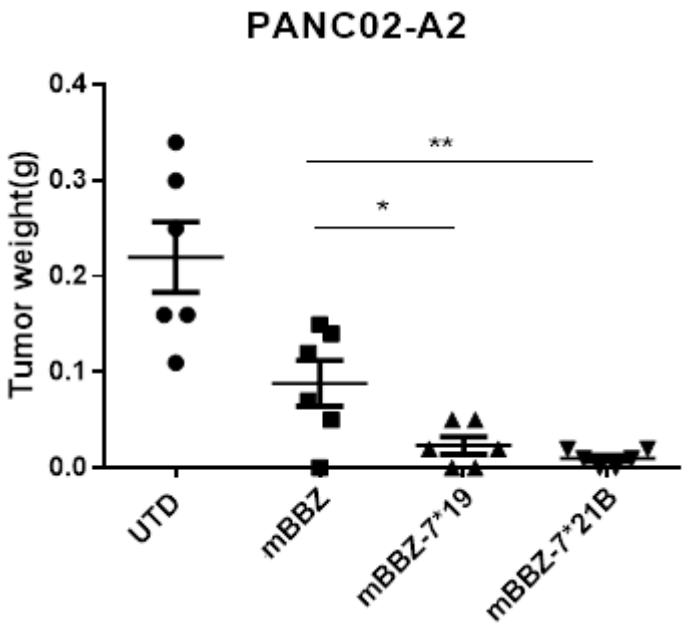


Fig. 12B

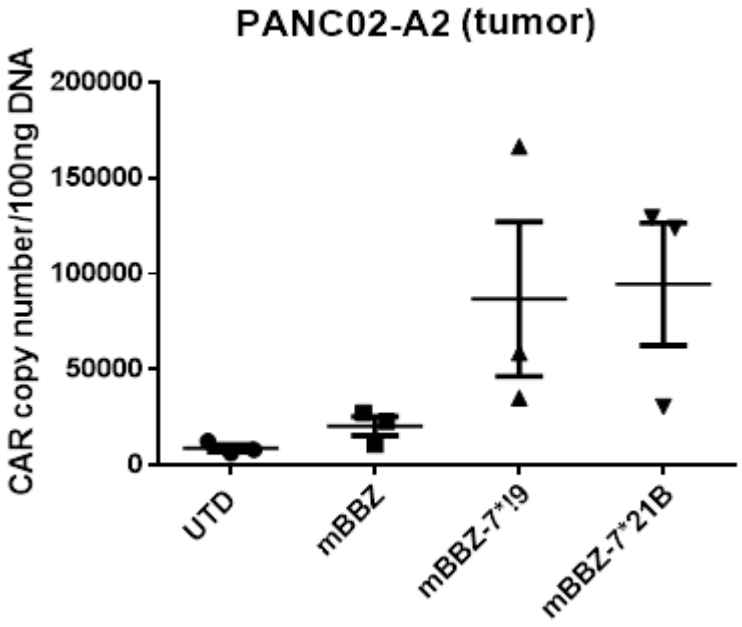


Fig. 12C

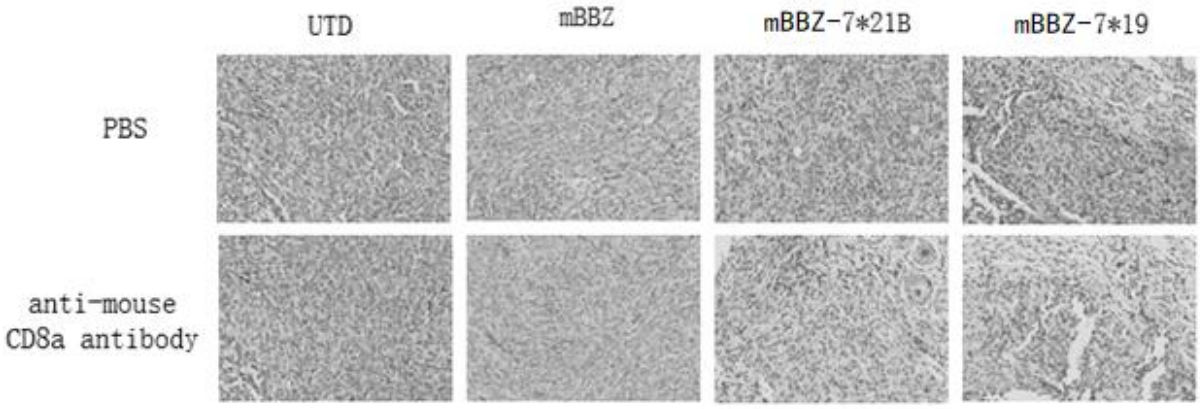


Fig. 12D

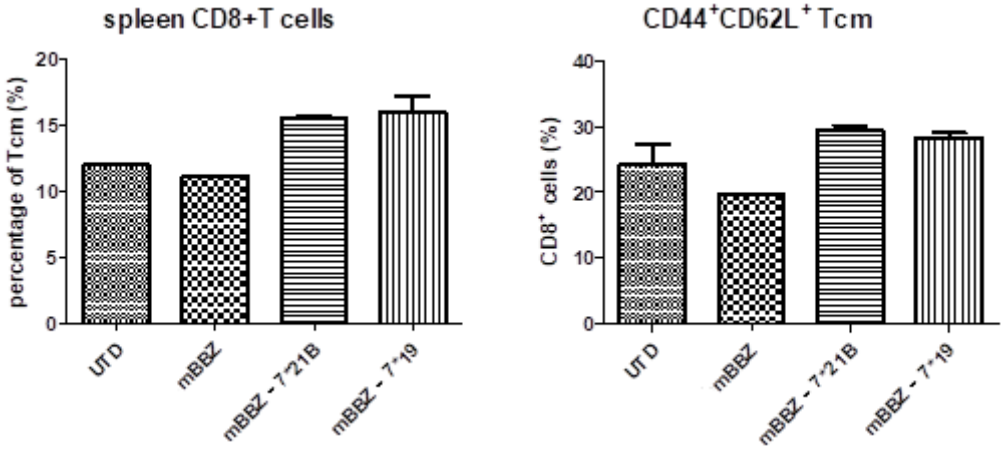


Fig. 13A

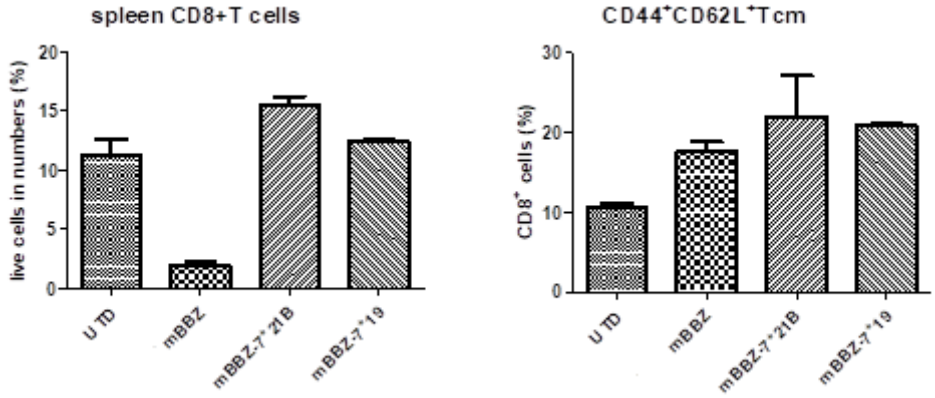


Fig. 13B

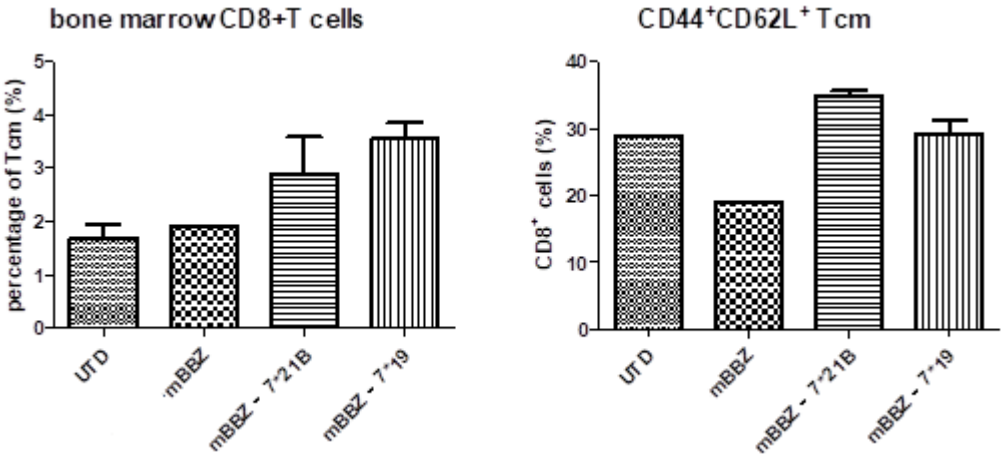


Fig. 14A

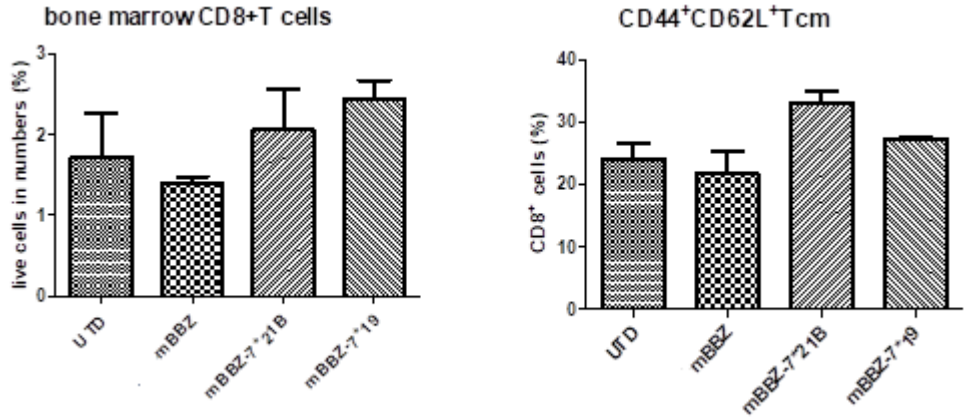


Fig. 14B

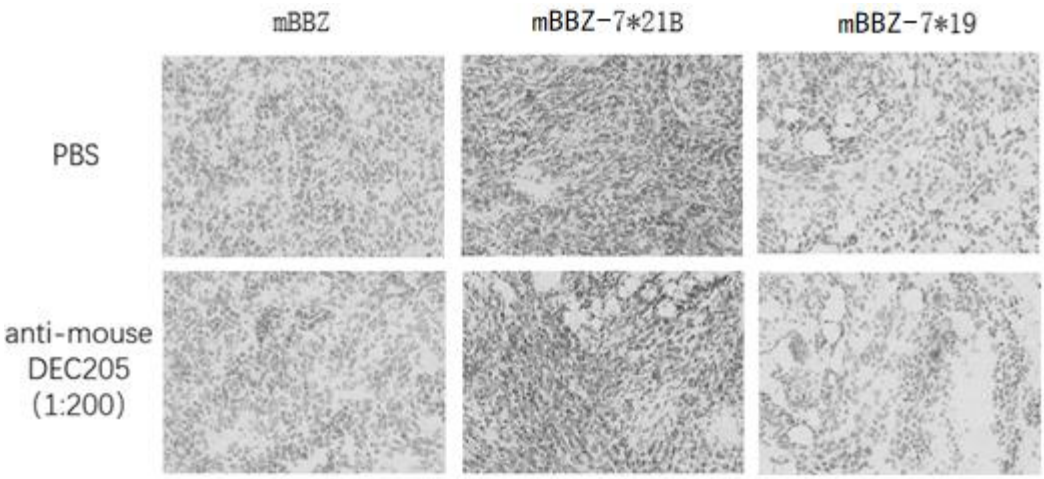


Fig. 15

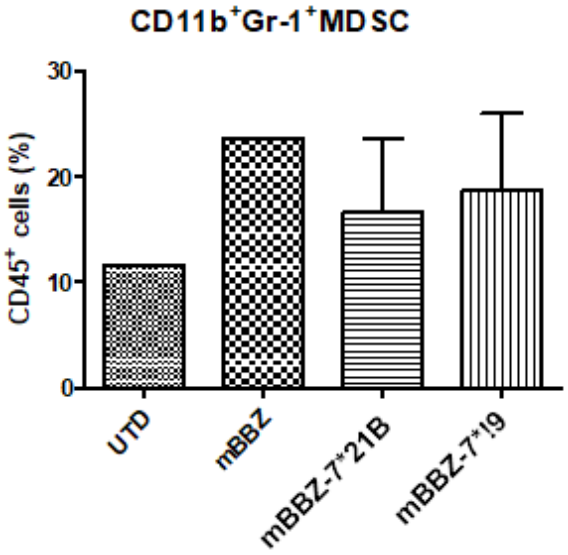

CD11b+Gr-1+MDSC
CD45+ cells (%)
30
20
10
0
UTD
mBBZ
mBBZ-7*21B
mBBZ-7*19

Fig. 16