Figure 1



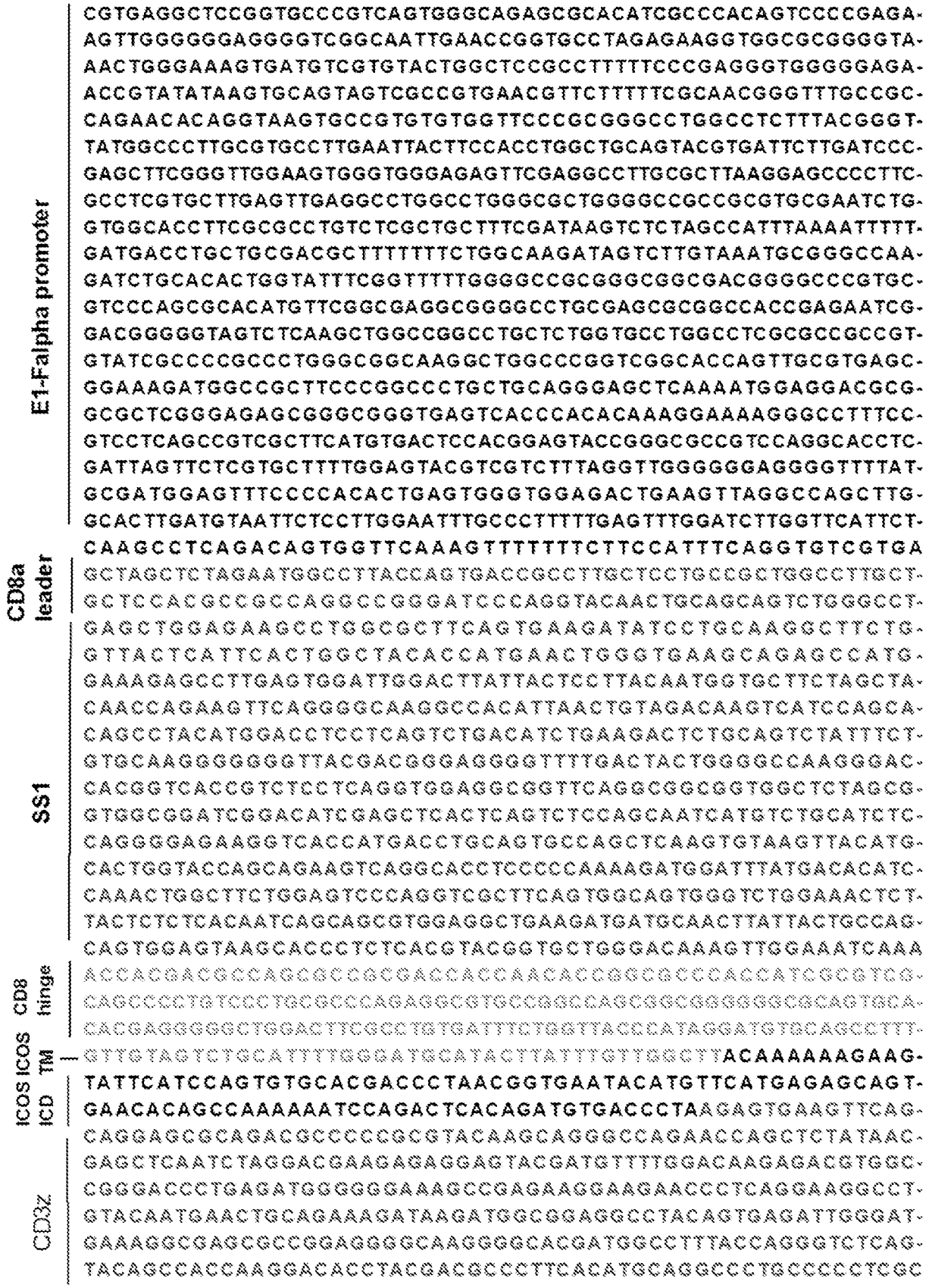
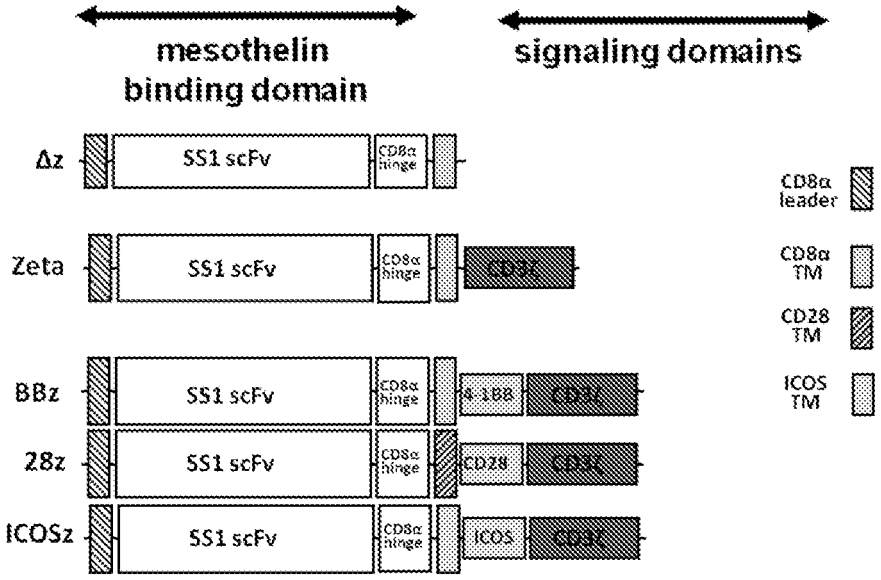

E1-Falpha promoter
CD8a leader
SS1
CD8 hinge
ICOS TM
ICOS ICD
CD3Z
CGTGAGGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCCACAGTCCCCGAGA-
AGTTGGGGGGAGGGGTCGGCAATTGAACCGGTGCCTAGAGAAGGTGGCGCGGGGTA-
AACTGGGAAAGTGATGTCGTGTACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGA-
ACCGTATATAAGTGCAGTAGTCGCCGTGAACGTTCTTTTTCGCAACGGGTTTGCCGC-
CAGAACACAGGTAAGTGCCGTGTGTGGTTCCCGCGGGCCTGGCCTCTTTACGGGT-
TATGGCCCTTGCGTGCCTTGAATTACTTCCACCTGGCTGCAGTACGTGATTCTTGATCCC-
GAGCTTCGGGTTGGAAGTGGGTGGGAGAGTTCGAGGCCTTGCGCTTAAGGAGCCCCTTC-
GCCTCGTGCTTGAGTTGAGGCCTGGCCTGGGCGCTGGGGCCGCCGCGTGCGAATCTG-
GTGGCACCTTCGCGCCTGTCTCGCTGCTTTCGATAAGTCTCTAGCCATTTAAAATTTTT-
GATGACCTGCTGCGACGCTTTTTTTCTGGCAAGATAGTCTTGTAAATGCGGGCCAA-
GATCTGCACACTGGTATTTCGGTTTTTGGGGCCGCGGGCGGCGACGGGGCCCGTGC-
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GTCCTCAGCCGTCGCTTCATGTGACTCCACGGAGTACCGGGCGCCGTCCAGGCACCTC-
GATTAGTTCTCGTGCTTTTGGAGTACGTCGTCTTTAGGTTGGGGGGAGGGGTTTTAT-
GCGATGGAGTTTCCCCACACTGAGTGGGTGGAGACTGAAGTTAGGCCAGCTTG-
GCACTTGATGTAATTCTCCTTGGAATTTGCCCTTTTTGAGTTTGGATCTTGGTTCATTCT-
CAAGCCTCAGACAGTGGTTCAAAGTTTTTTTCTTCCATTTCAGGTGTCGTGA
GCTAGCTCTAGAATGGCCTTACCAGTGACCGCCTTGCTCCTGCCGCTGGCCTTGCT-
GCTCCACGCCGCCAGGCCGGGATCCCAGGTACAACTGCAGCAGTCTGGGCCT-
GAGCTGGAGAAGCCTGGCGCTTCAGTGAAGATATCCTGCAAGGCTTCTG-
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GAAAGAGCCTTGAGTGGATTGGACTTATTACTCCTTACAATGGTGCTTCTAGCTA-
CAACCAGAAGTTCAGGGGCAAGGCCACATTAACTGTAGACAAGTCATCCAGCA-
CAGCCTACATGGACCTCCTCAGTCTGACATCTGAAGACTCTGCAGTCTATTTCT-
GTGCAAGGGGGGGTTACGACGGGAGGGGTTTTGACTACTGGGGCCAAGGGAC-
CACGGTCACCGTCTCCTCAGGTGGAGGCGGTTCAGGCGGCGGTGGCTCTAGCG-
GTGGCGGATCGGACATCGAGCTCACTCAGTCTCCAGCAATCATGTCTGCATCTC-
CAGGGGAGAAGGTCACCATGACCTGCAGTGCCAGCTCAAGTGTAAGTTACATG-
CACTGGTACCAGCAGAAGTCAGGCACCTCCCCCAAAAGATGGATTTATGACACATC-
CAAACTGGCTTCTGGAGTCCCAGGTCGCTTCAGTGGCAGTGGGTCTGGAAACTCT-
TACTCTCTCACAATCAGCAGCGTGGAGGCTGAAGATGATGCAACTTATTACTGCCAG-
CAGTGGAGTAAGCACCCTCTCACGTACGGTGCTGGGACAAAGTTGGAAATCAAA
ACCACGACGCCAGCGCCGCGACCACCAACACCGGCGCCCACCATCGCGTCG-
CAGCCCCTGTCCCTGCGCCCAGAGGCGTGCCGGCCAGCGGCGGGGGGCGCAGTGCA-
CACGAGGGGGCTGGACTTCGCCTGTGATTTCTGGTTACCCATAGGATGTGCAGCCTTT-
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GAACACAGCCAAAAAATCCAGACTCACAGATGTGACCCTAAGAGTGAAGTTCAG-
CAGGAGCGCAGACGCCCCCGCGTACAAGCAGGGCCAGAACCAGCTCTATAAC-
GAGCTCAATCTAGGACGAAGAGAGGAGTACGATGTTTTGGACAAGAGACGTGGC-
CGGGACCCTGAGATGGGGGGAAAGCCGAGAAGGAAGAACCCTCAGGAAGGCCT-
GTACAATGAACTGCAGAAAGATAAGATGGCGGAGGCCTACAGTGAGATTGGGAT-
GAAAGGCGAGCGCCGGAGGGGCAAGGGGCACGATGGCCTTTACCAGGGTCTCAG-
TACAGCCACCAAGGACACCTACGACGCCCTTCACATGCAGGCCCTGCCCCCTCGC

Figure 2A



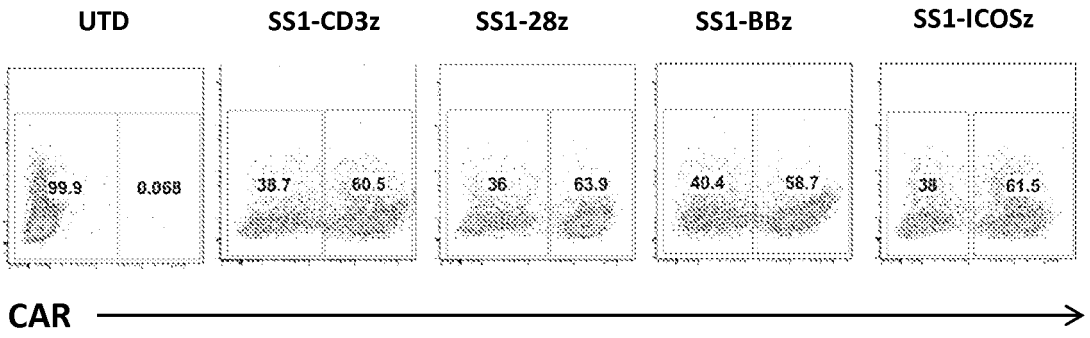




Figure 2B

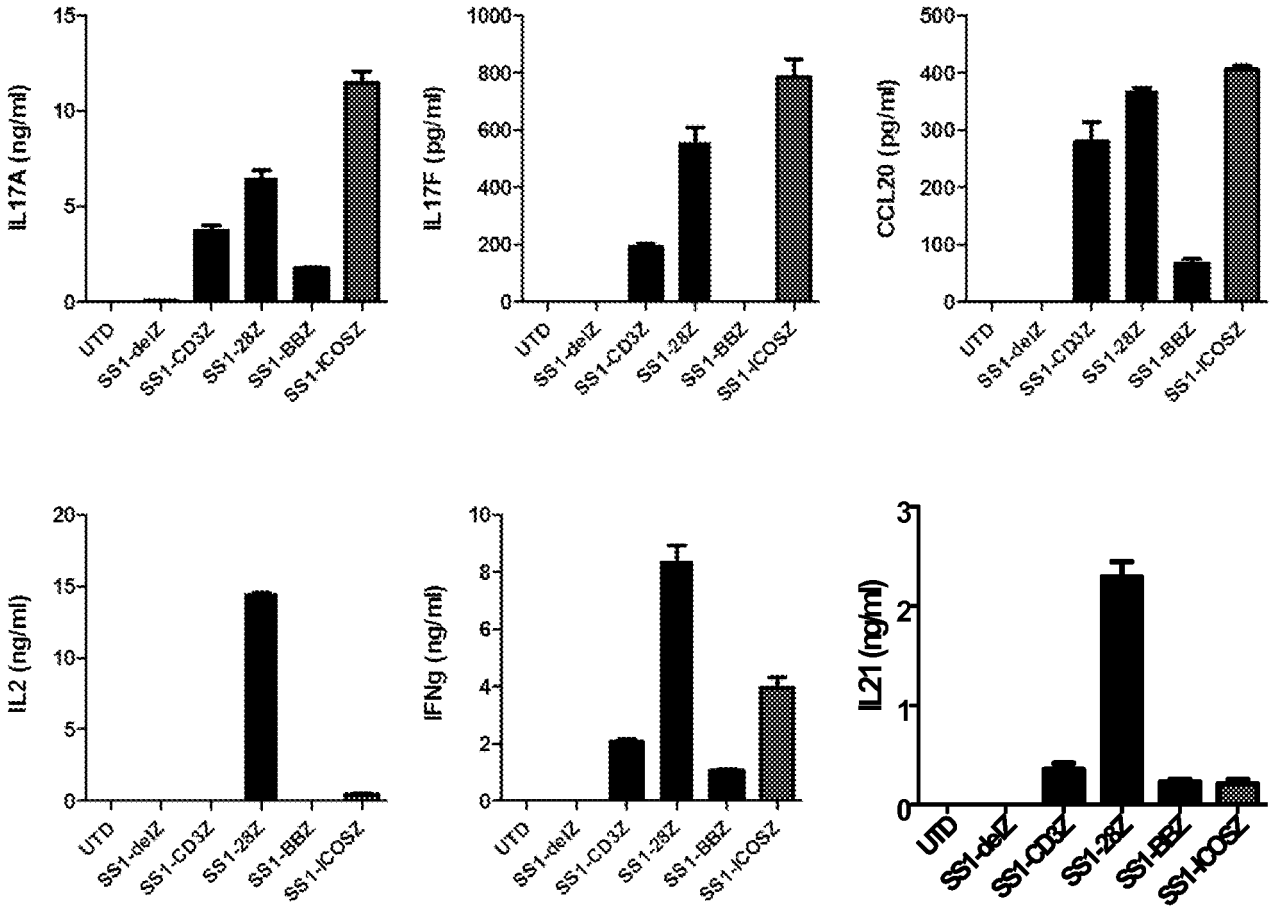

IL17A (ng/ml)
IL17F (pg/ml)
CCL20 (pg/ml)
IL2 (ng/ml)
IFNg (ng/ml)
IL21 (ng/ml)
UTD
SS1-delZ
SS1-CD3Z
SS1-28Z
SS1-BBZ
SS1-ICOSZ

Figure 3

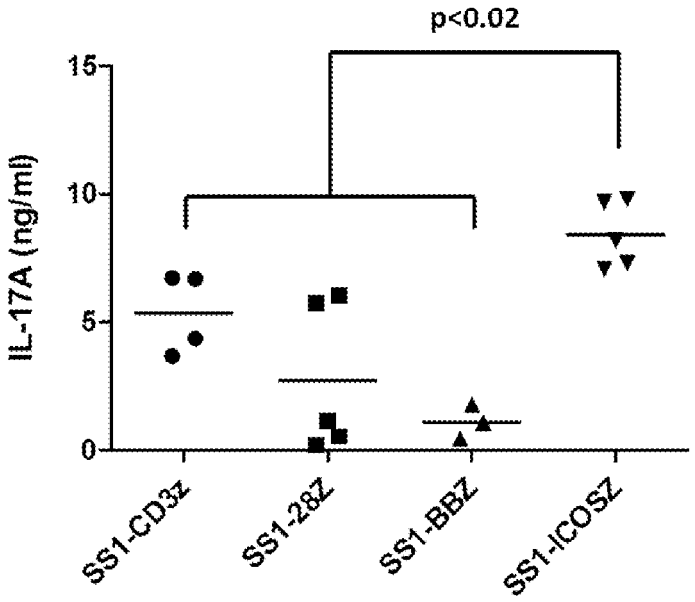



Figure 4

Figure 5A

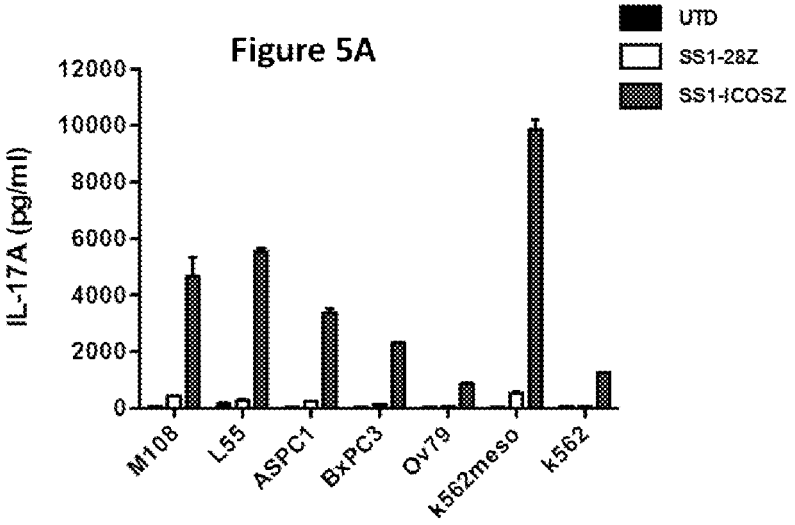



Figure 5B

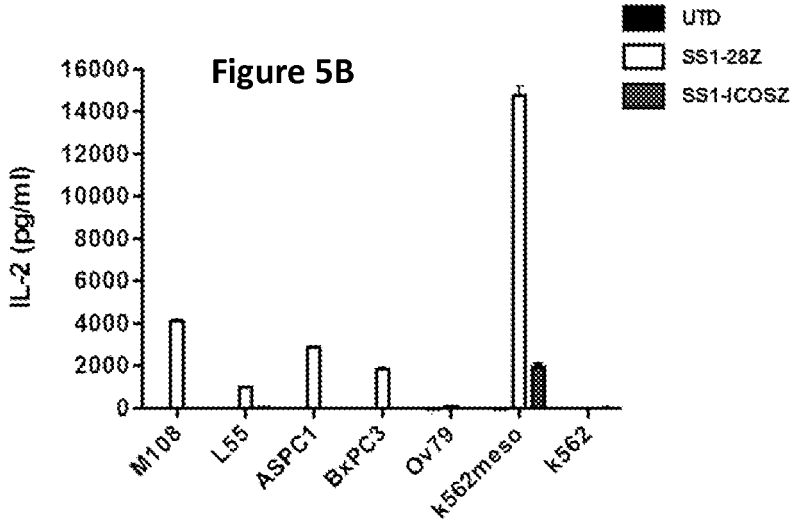



Figure 5C

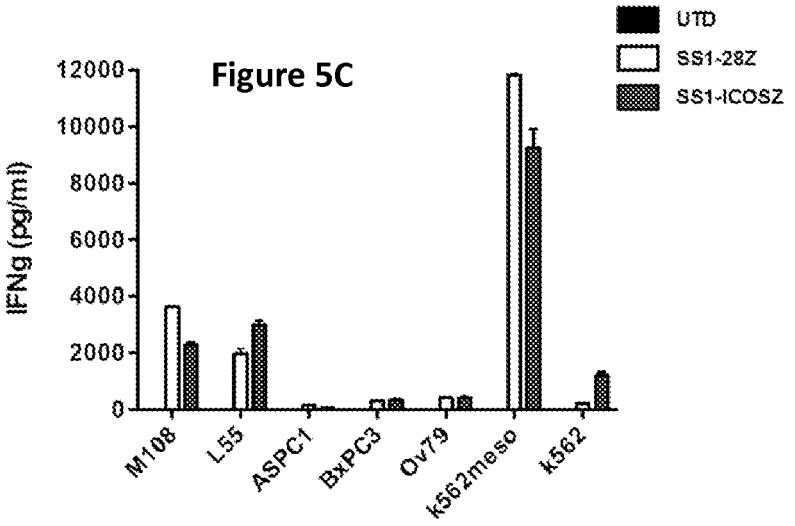
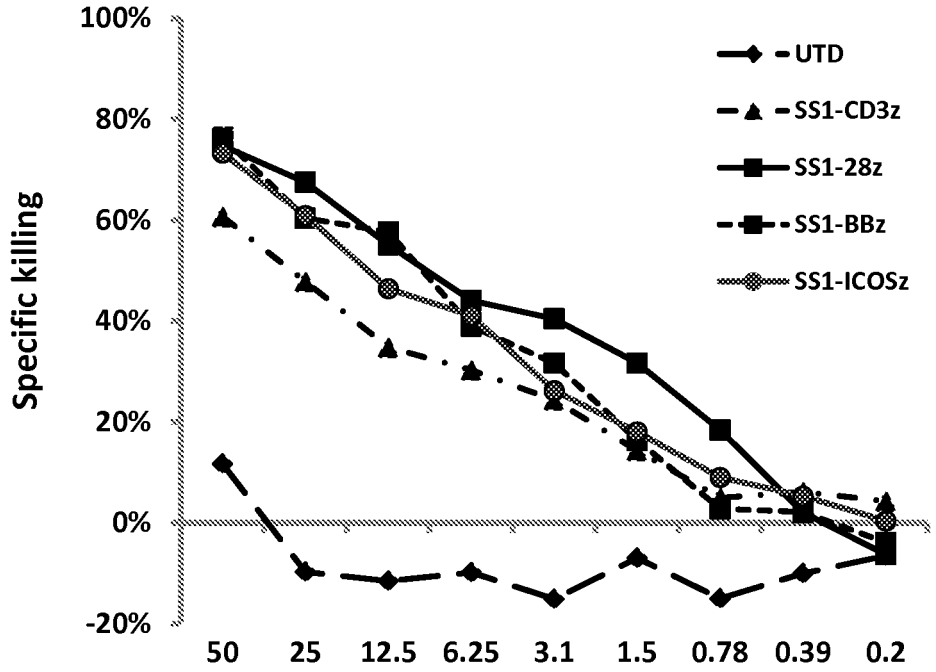


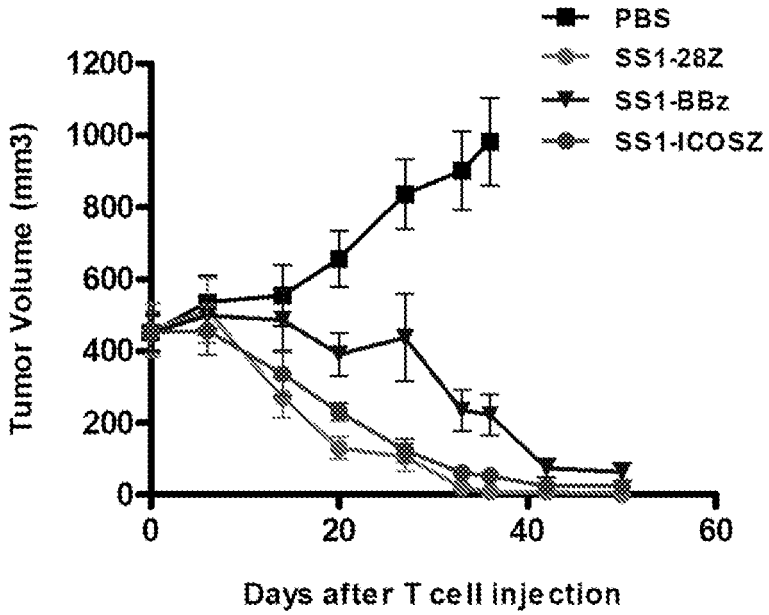
Figure 6A




| CAR | IC50 |
|---|---|
| SS1-z | 9.92 |
| SS1-28z | 2.176 |
| SS1-BBz | 9.576 |
| SS1-ICOSz | 6.857 |

Figure 6B

Figure 7A



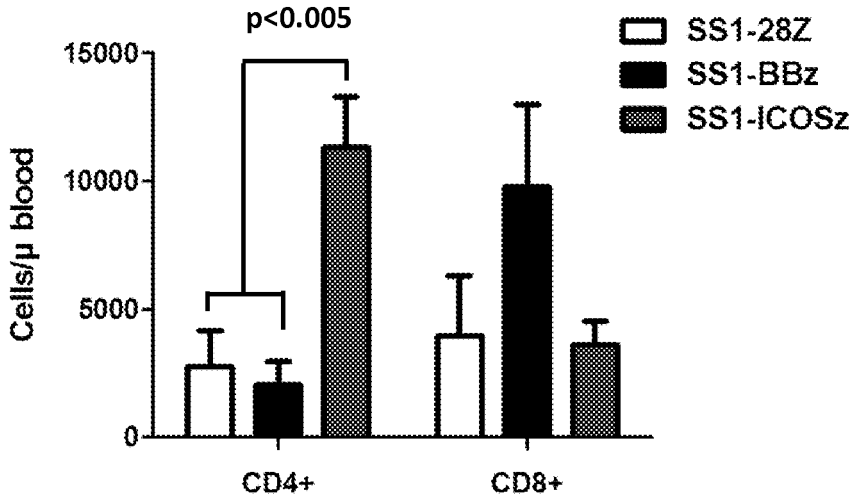
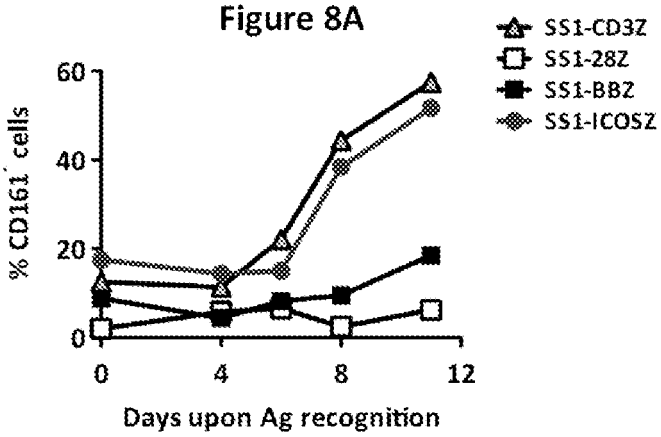




Figure 7B

Figure 8A



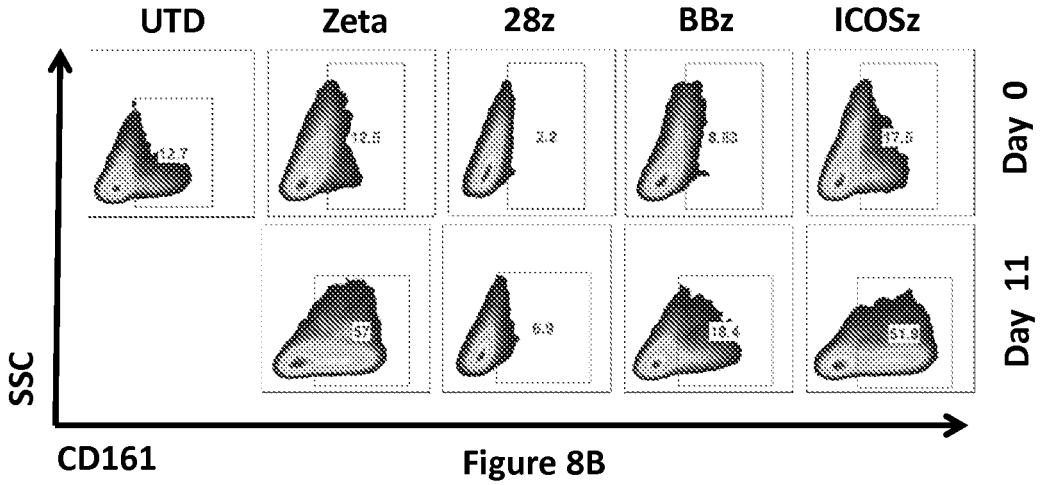




Figure 8B

Figure 8C

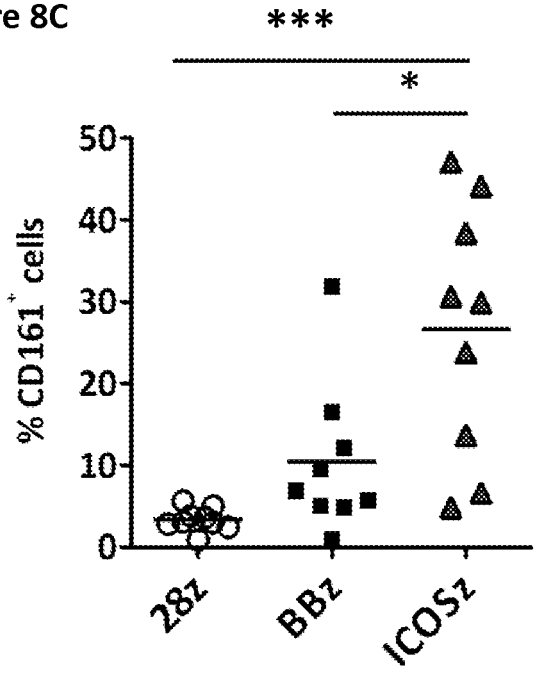



Figure 8D

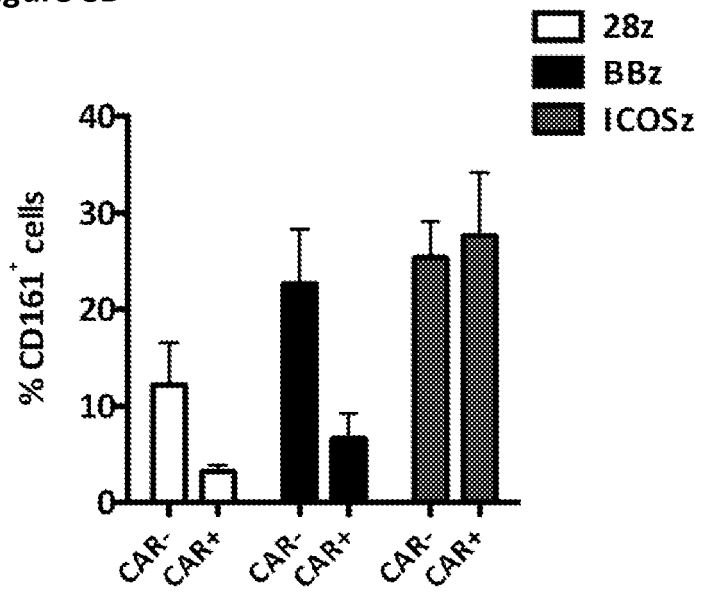


Figure 9A

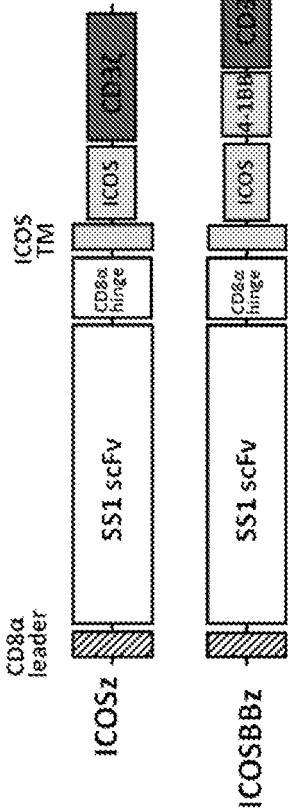
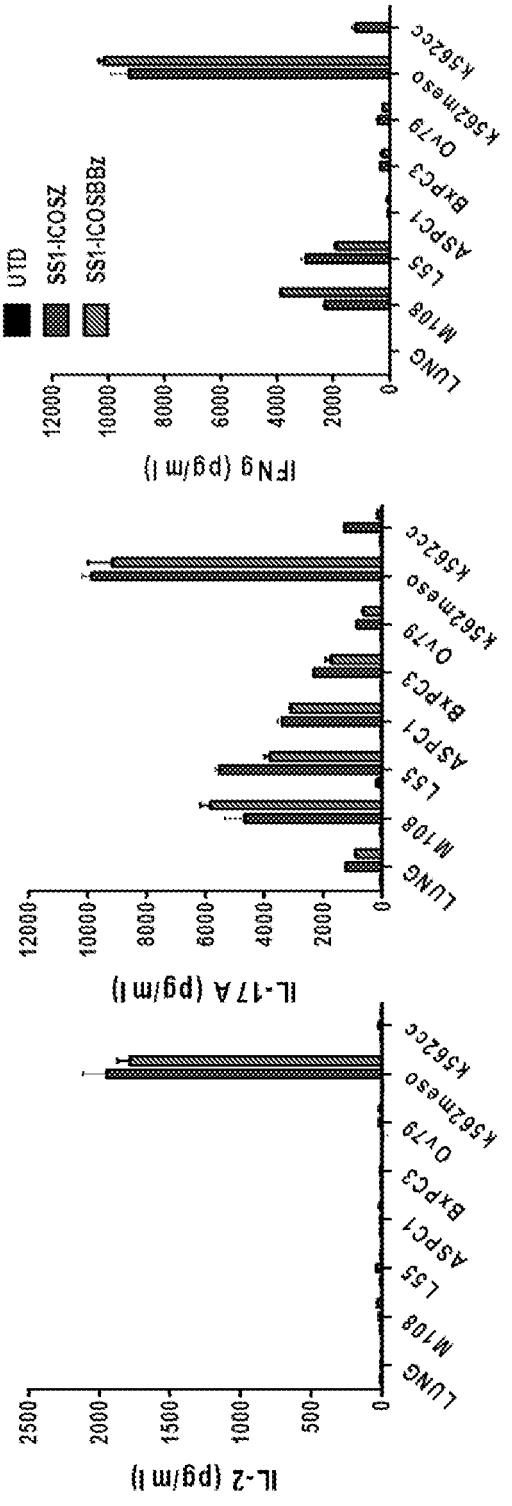



Figure 9B



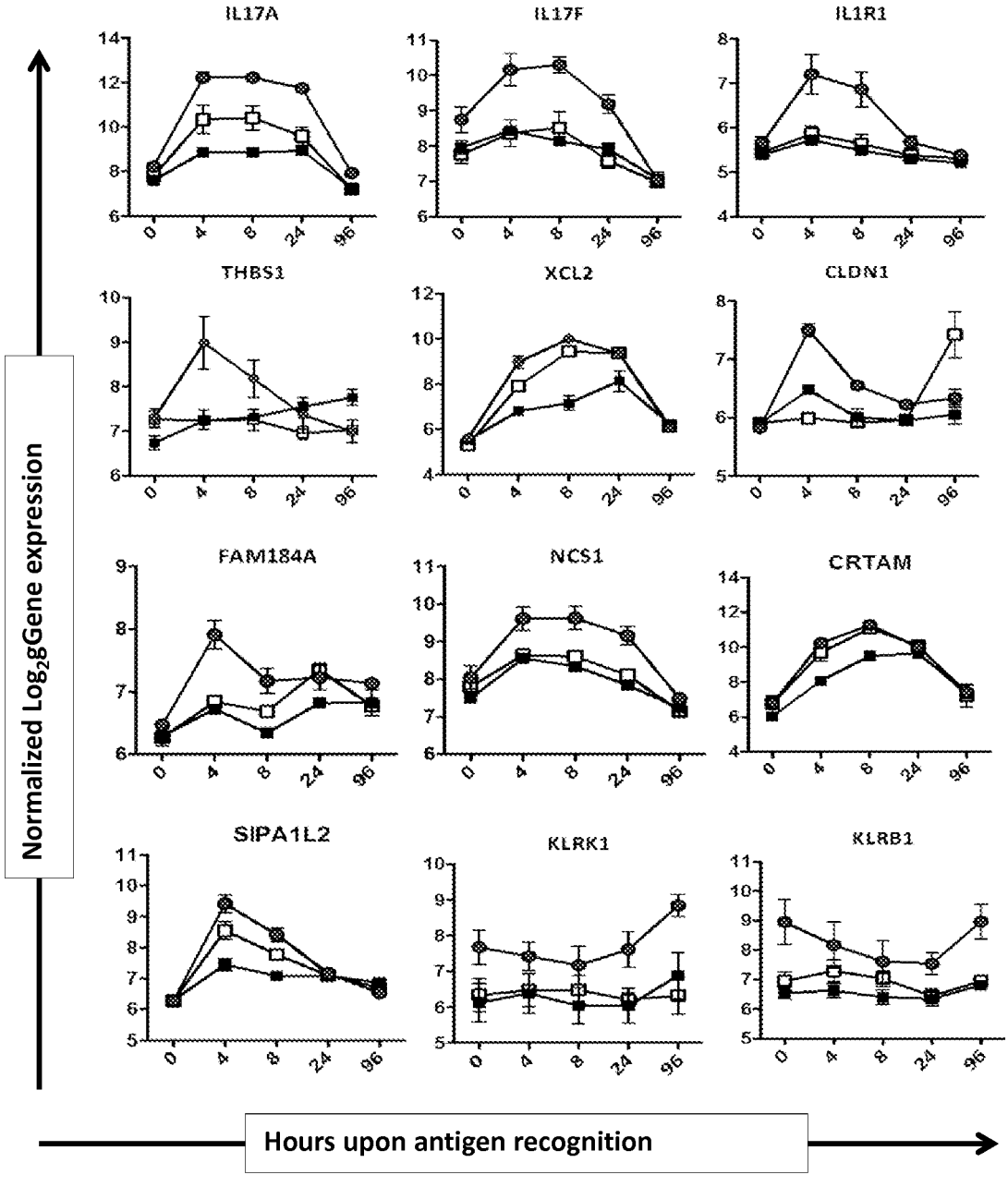

IL17A
IL17F
IL1R1
THBS1
XCL2
CLDN1
FAM184A
NCS1
CRTAM
SIPA1L2
KLRK1
KLRB1
0 4 8 24 96
Normalized Log2gGene expression
Hours upon antigen recognition

Figure 10A

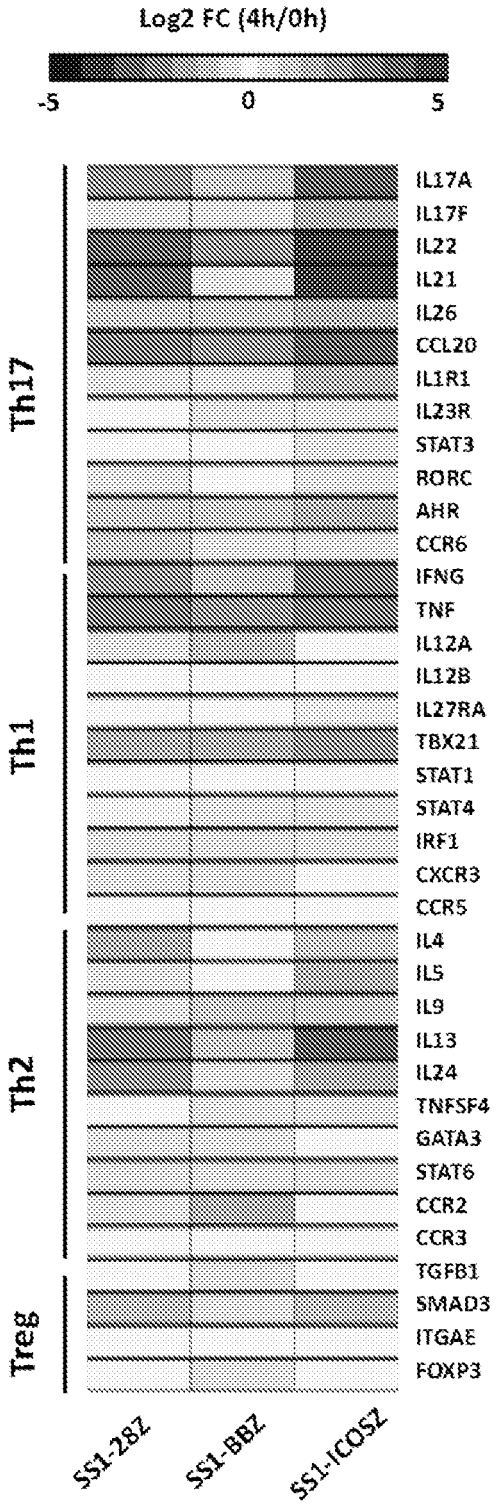

Log2 FC (4h/0h)
-5
0
5
Th17
Th1
Th2
Treg
IL17A
IL17F
IL22
IL21
IL26
CCL20
IL1R1
IL23R
STAT3
RORC
AHR
CCR6
IFNG
TNF
IL12A
IL12B
IL27RA
TBX21
STAT1
STAT4
IRF1
CXCR3
CCR5
IL4
IL5
IL9
IL13
IL24
TNFSF4
GATA3
STAT6
CCR2
CCR3
TGFB1
SMAD3
ITGAE
FOXP3
SS1-28Z
SS1-BBZ
SS1-ICOSZ

Figure 10B

- Log10 (P-value)
0
8
16
Role of Cytokines in Mediatin Commu ni c atio he tween Immune Cells
Differentia R egulatio d Cy tokine Produstio in In testinl Epi thel id Cel ls b y IL-17A and IL-17F
Altered T Cell and B Cell Signaling in Rheumatoid Arthritis
Differentia R egulatio d Cy tokine Productio in Mac cr ophages and T Helper Cells by IL-17A and IL-17F
Communicatio he tween Innate and Adaptive Immune Cells
T Helper Cell Differentiatio
Hematopoiesis from Pluripotent Stem Cells
Role of Hypercytokinemia/hyperchemokinemia in the Pathogenesis of Influnz a
Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis
Type I Diabetes Mellitus Signaling
Hepatich br osis / Hepatic S ellate Cell Activatio
Allograft ejectio Signaling
Glucocorticoid Receptor Signaling
Graft-versus-Host Disease Signaling
IL-10 Signaling
Crosstalk between Dendritic Cells and Na tural Killer Cells
TREM1 Signaling
Hematopoiesis from Multipt ent Stem Cells
Role of Osteoblasts, Osteoclasts and Chondrocytes in Rheumatoid Arthritis
Atherosclerosis Signaling
IL-6 Signaling
Dendritic Cel l Ma turatio
PPAR Signaling
Assembly of RNA Polymerase I Complex
p38 MAPK Signaling
Role of JAK1 and JAK3 in γc Cytokine Signaling
Autoimmune Thyroid Disease Signaling
Airway Inflama tio in As thma
Role of Tissue Factor in Cancer
Role of IL-17A in Psoriasis
SS1-2B2
SS1-BB2
SS1-ICOS2

Figure 10C