

Polypeptide Schematics

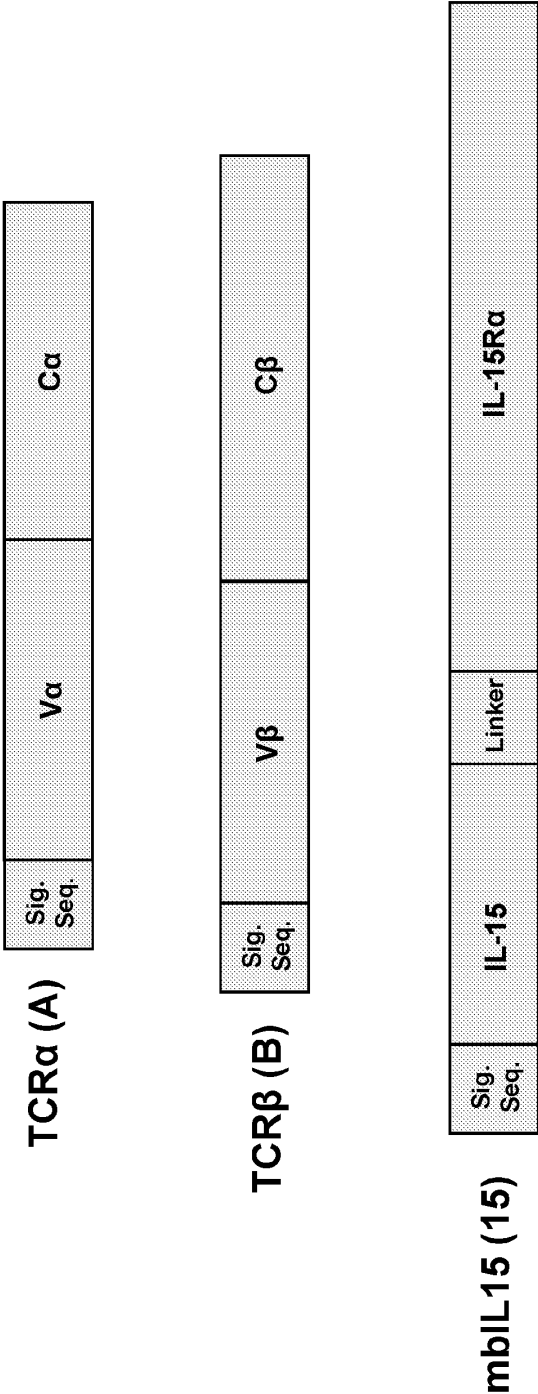


FIG. 1

Tricistronic Cassette ORF Schematics

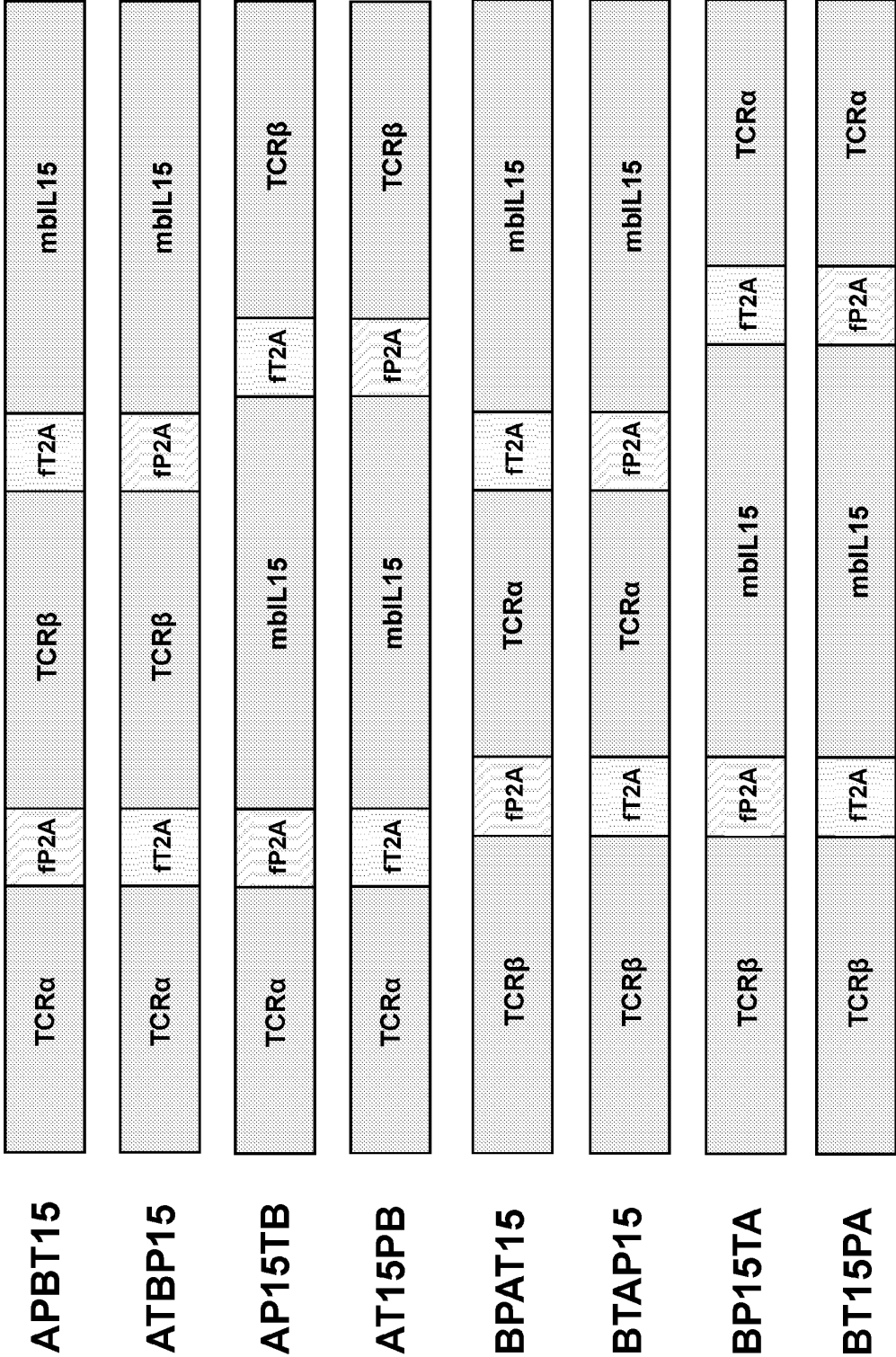


FIG. 2A

Control Cassette ORF Schematics

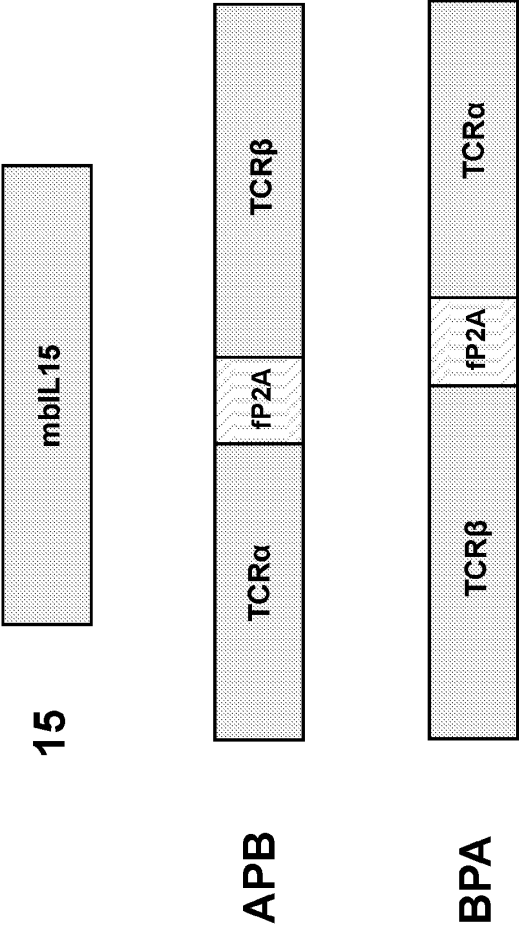


FIG. 2B

Genetic Modification Using Sleeping Beauty to
Generate TCR-mbIL15 T Cells

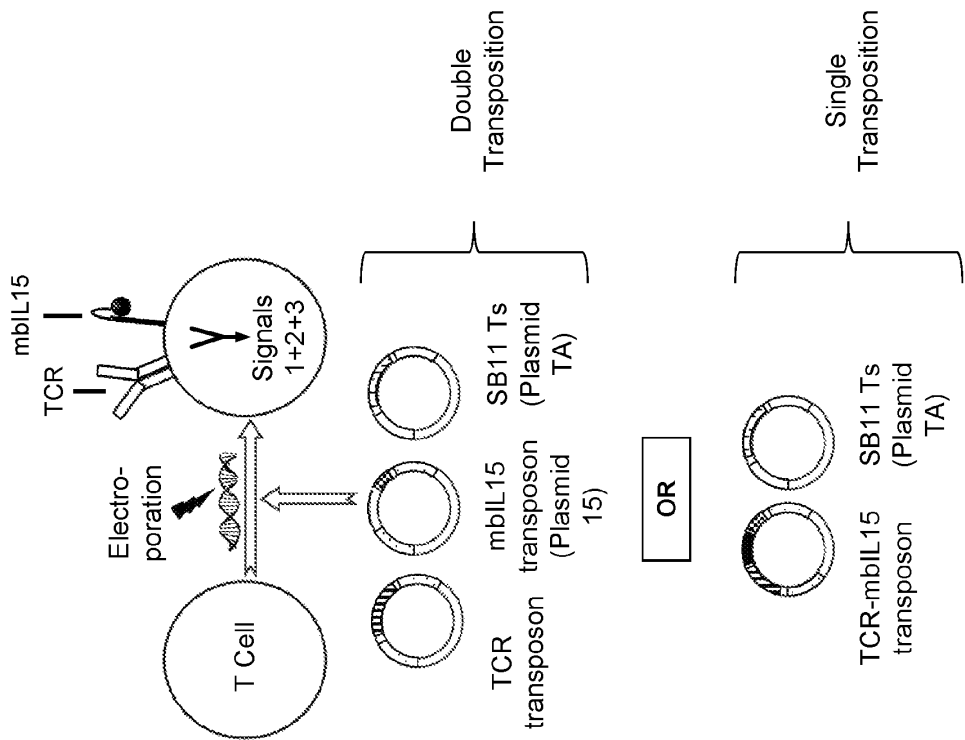


FIG. 3

Transgene Co-Expression by Flow Cytometry

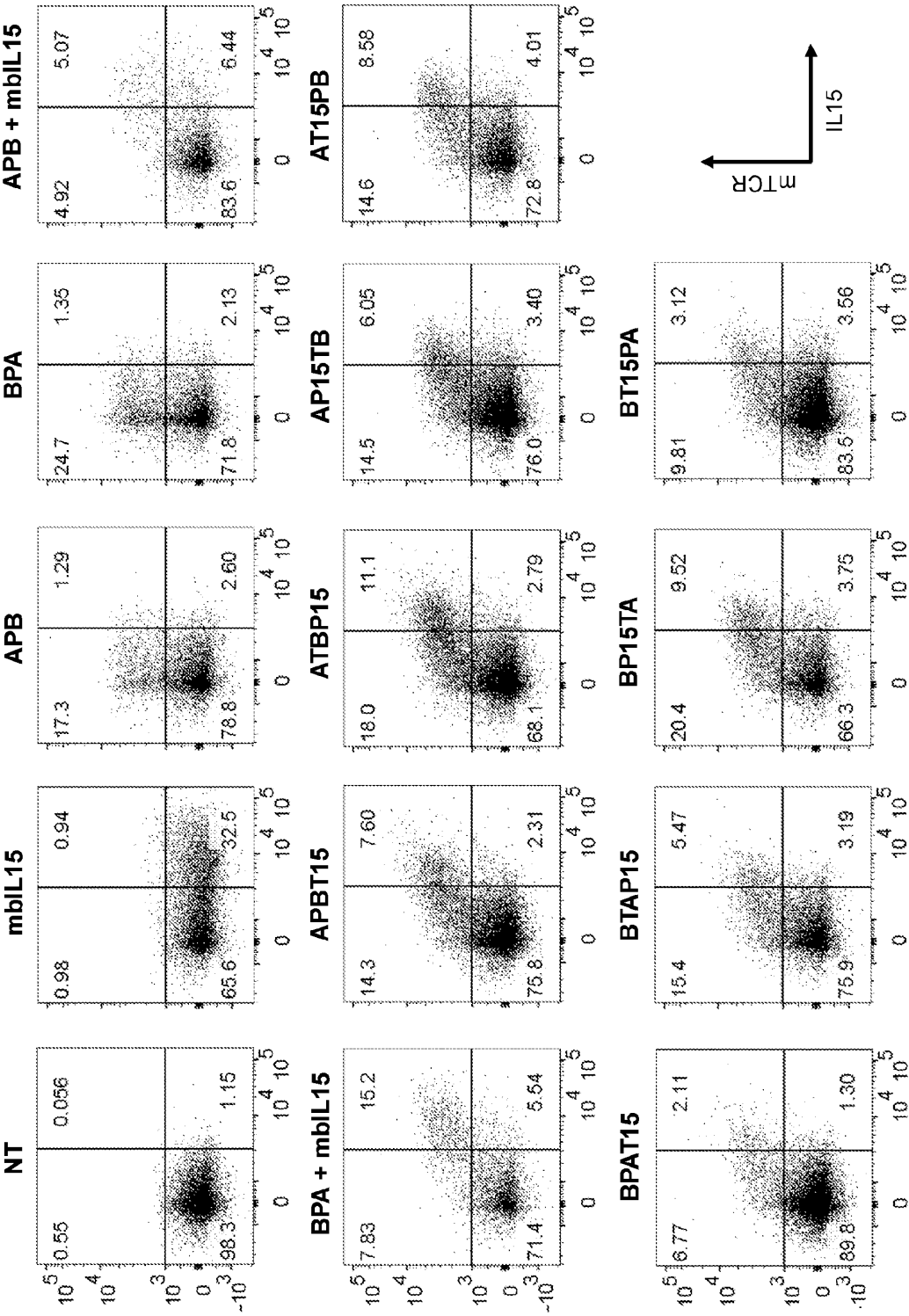


FIG. 4

TCR Expression by Flow Cytometry

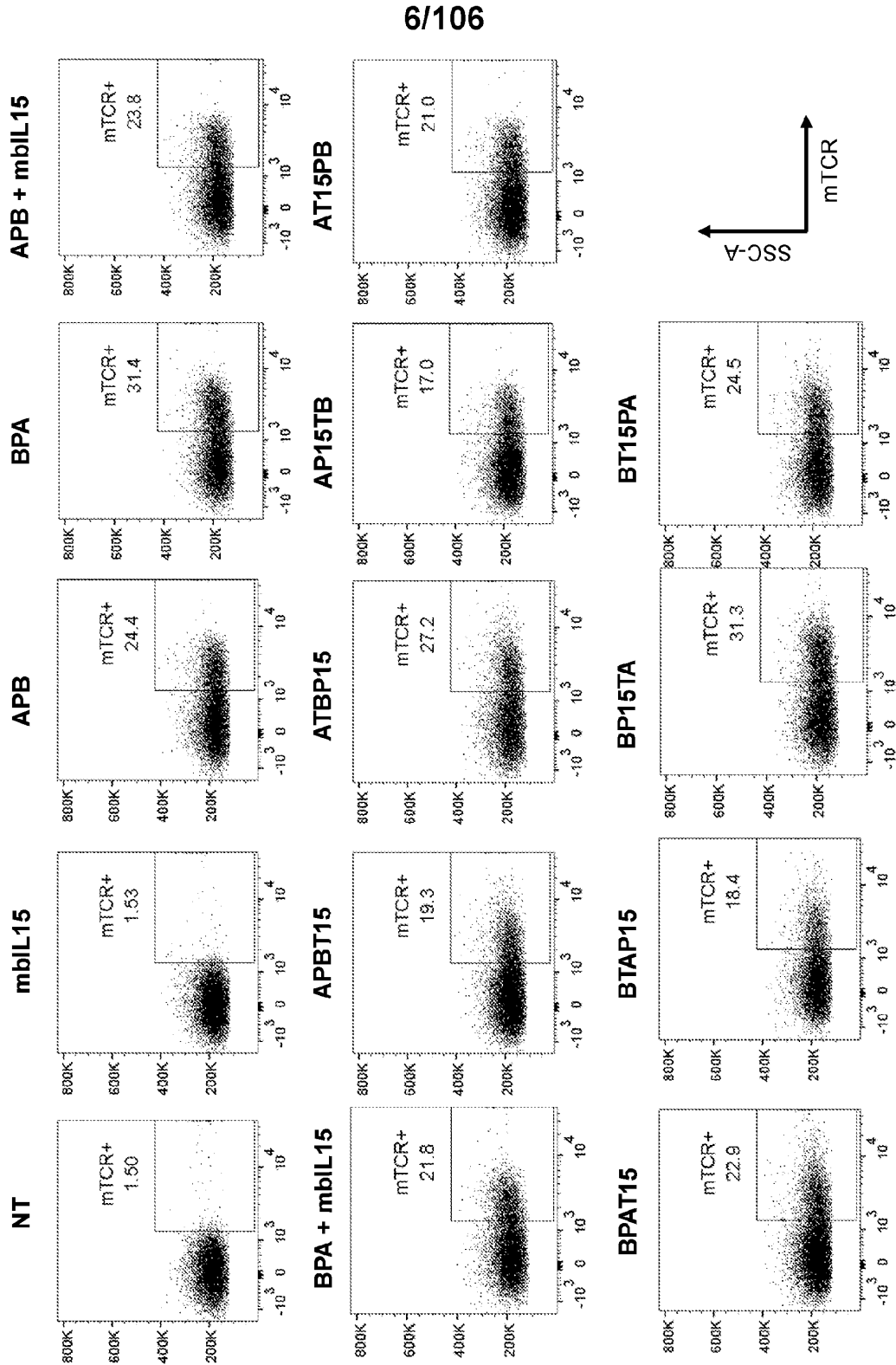
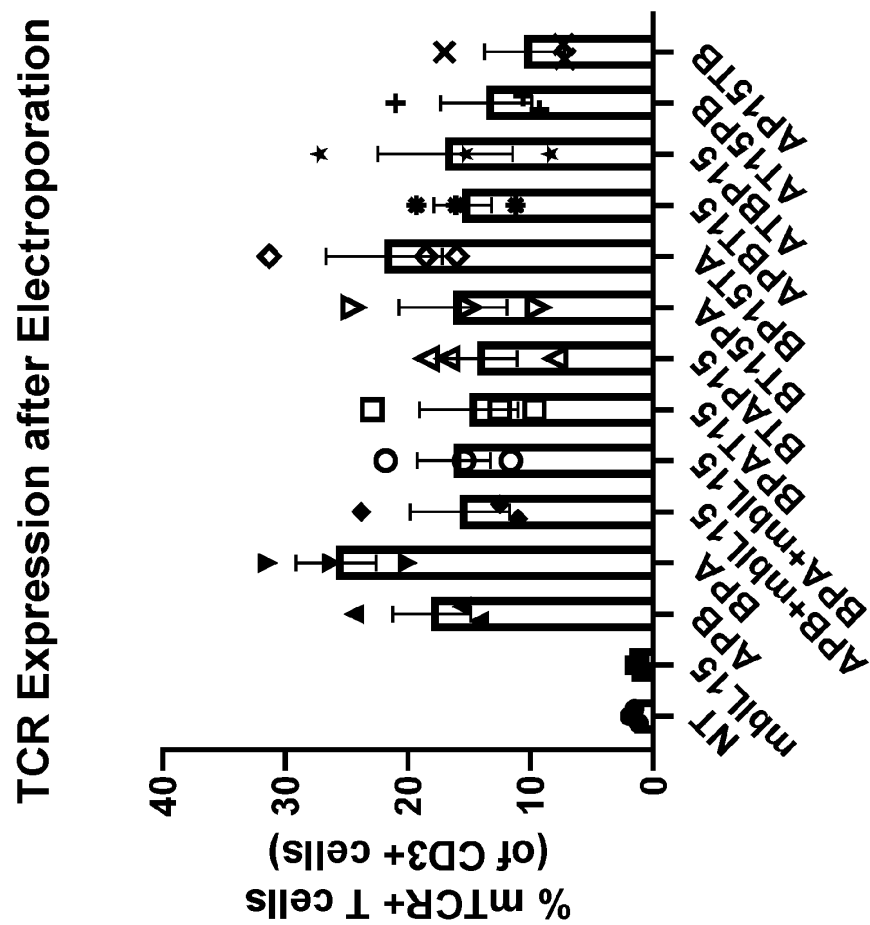


FIG. 5A



Transgene Co-Expression after Expansion

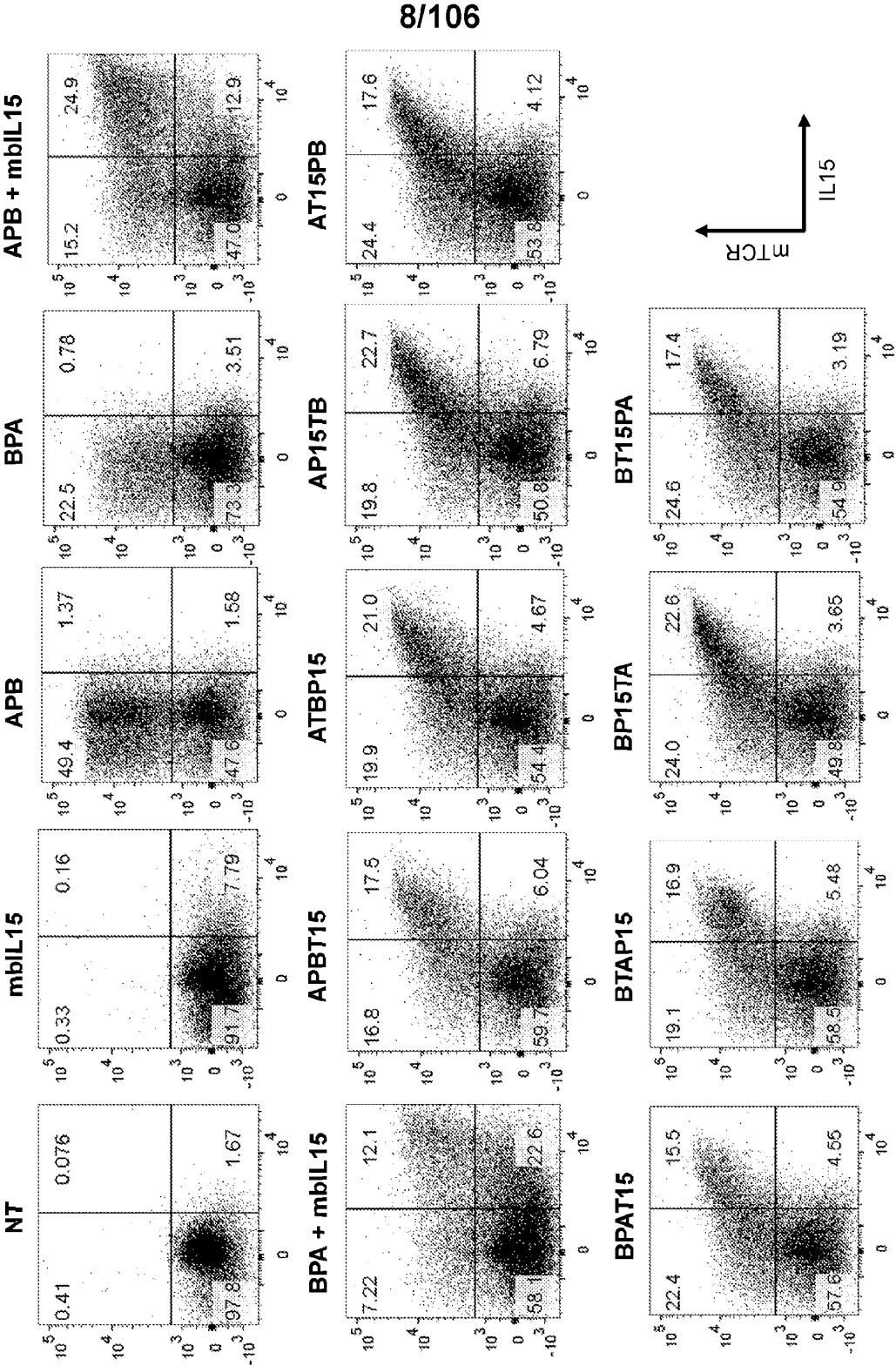


FIG. 6A

TCR Expression after Expansion

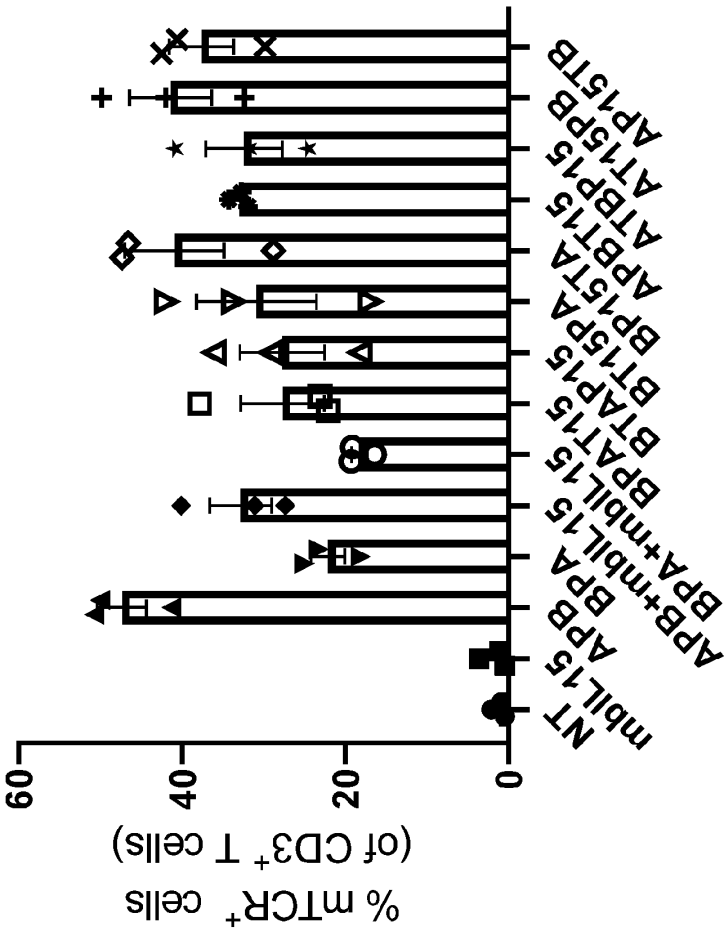


FIG. 6B

TCR+/mbIL15+ Expression after Expansion

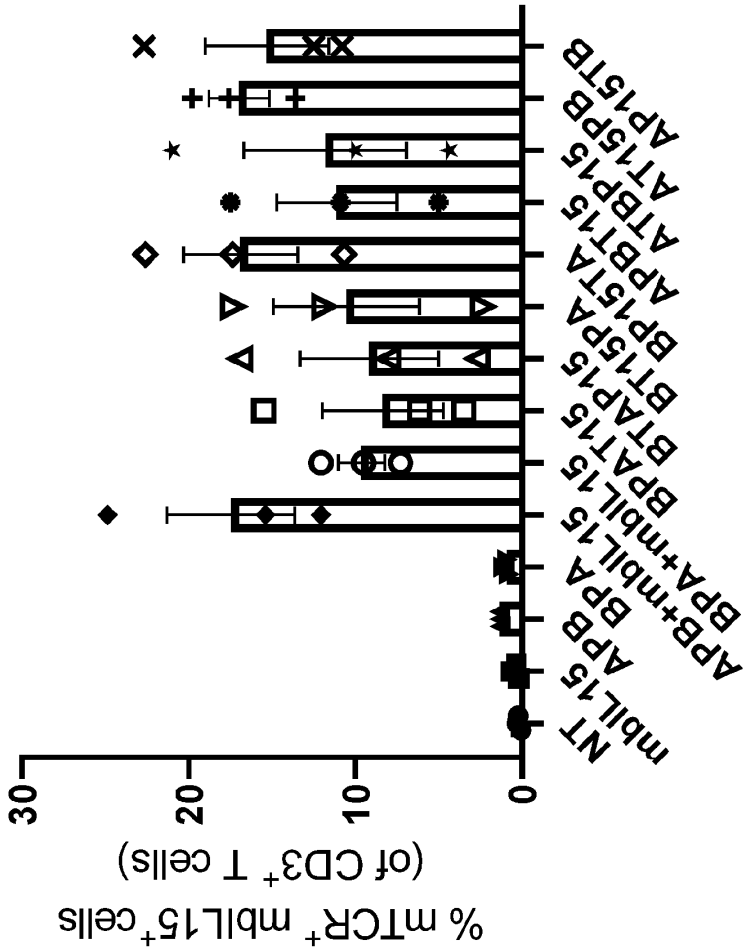


FIG. 6C

TCR+ Cell Number after Expansion

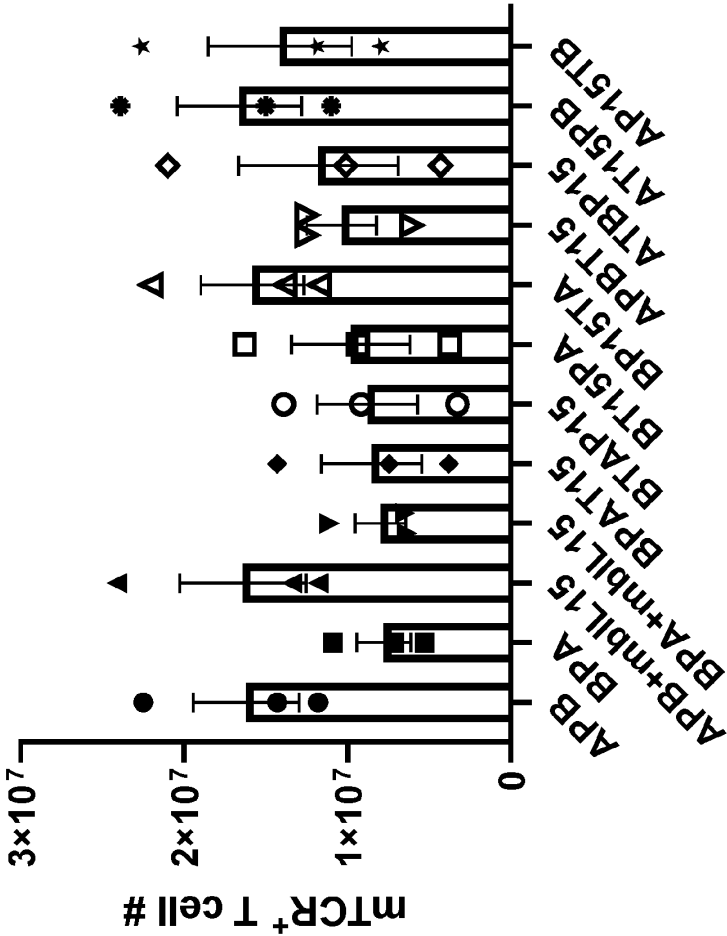


FIG. 7A

TCR+/mbIL15+ Cell Number after Expansion

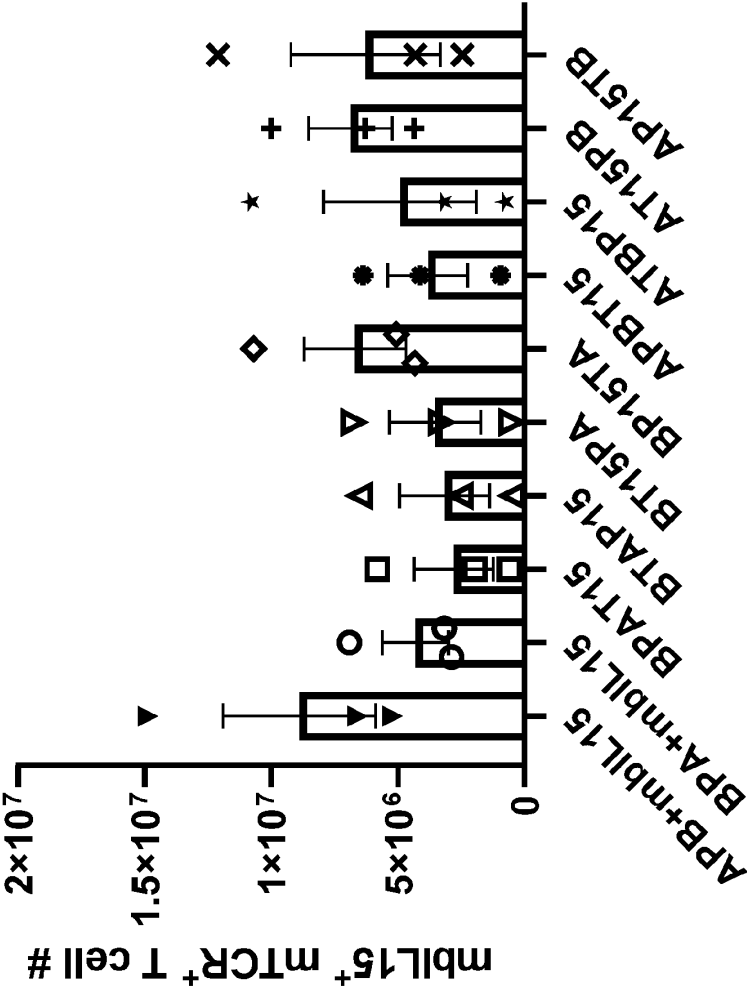
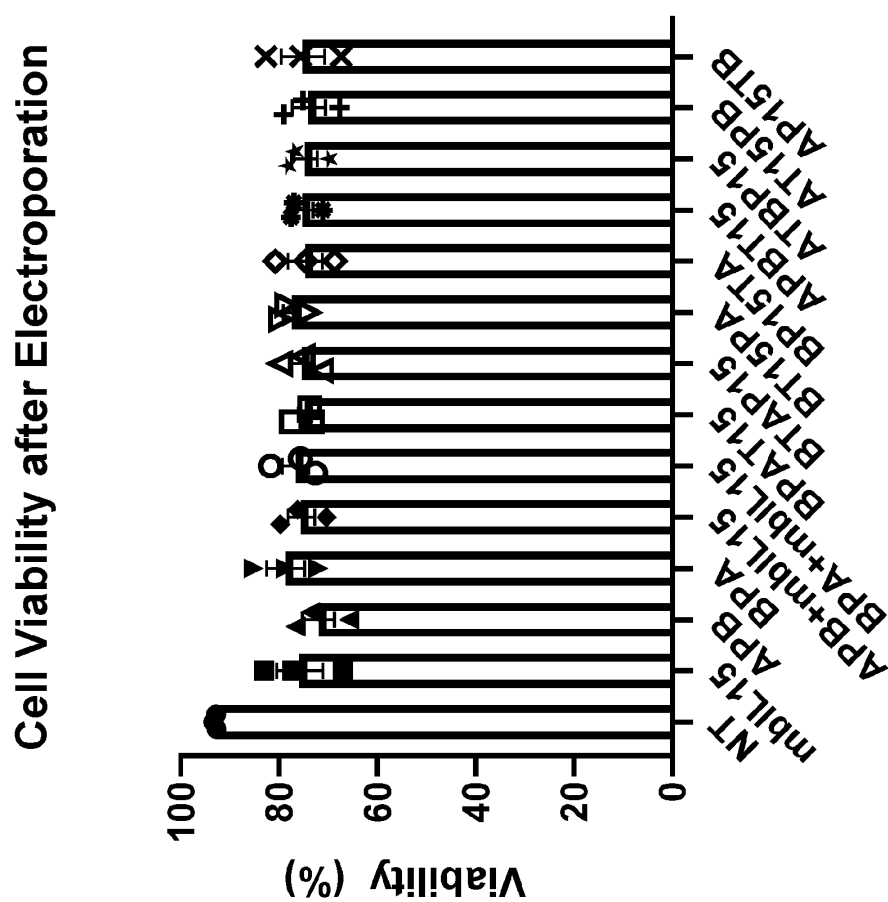


FIG. 7B



Cell Viability after Expansion

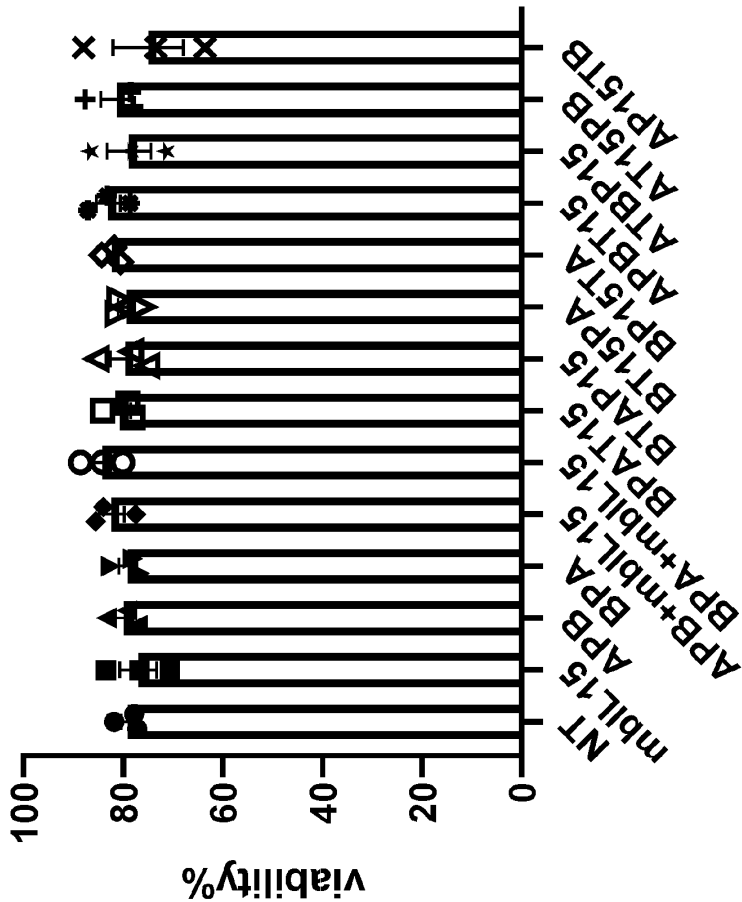


FIG. 8B

Induction of 4-1BB after Expansion

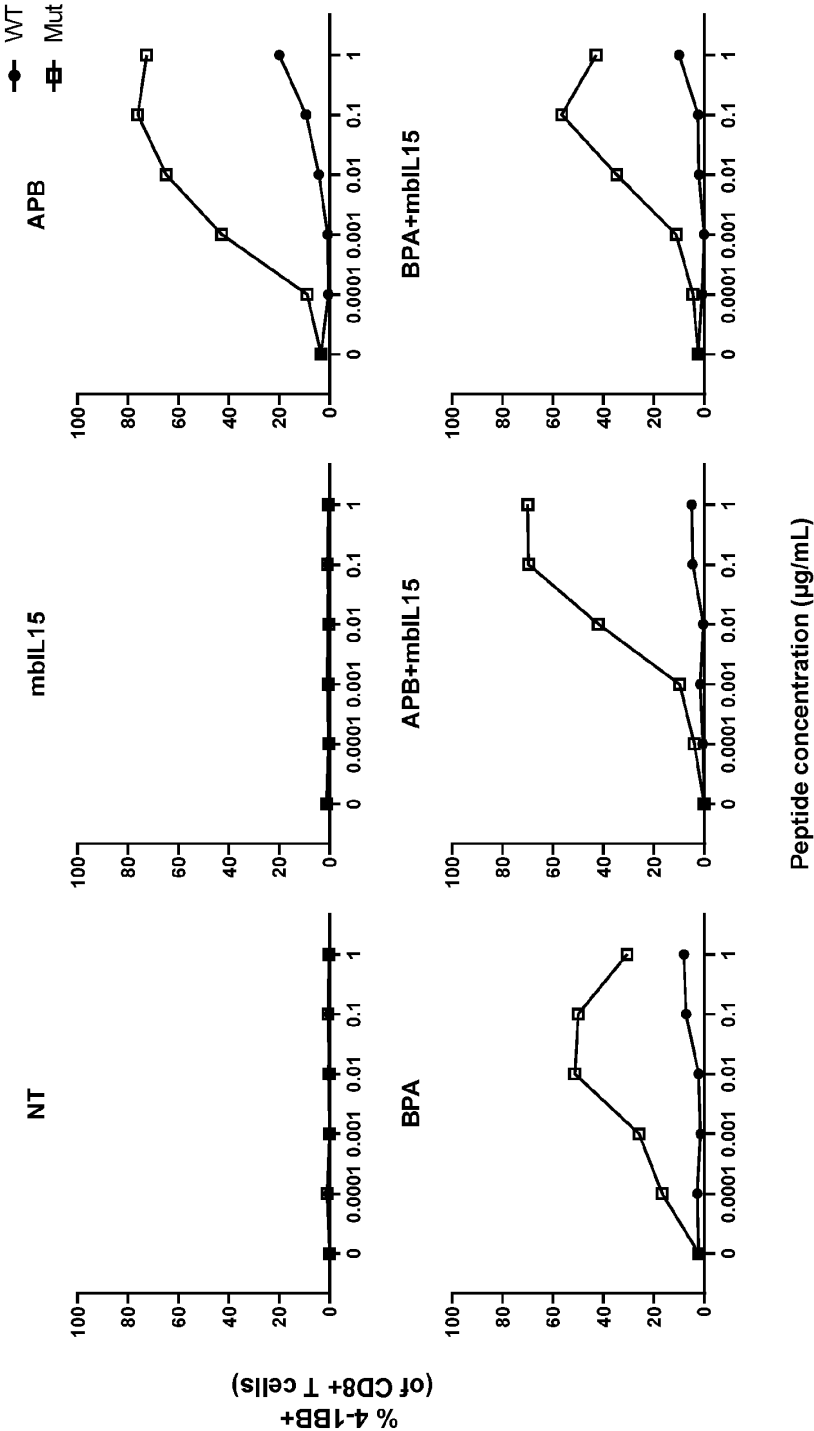


FIG. 9A

Induction of 4-1BB after Expansion

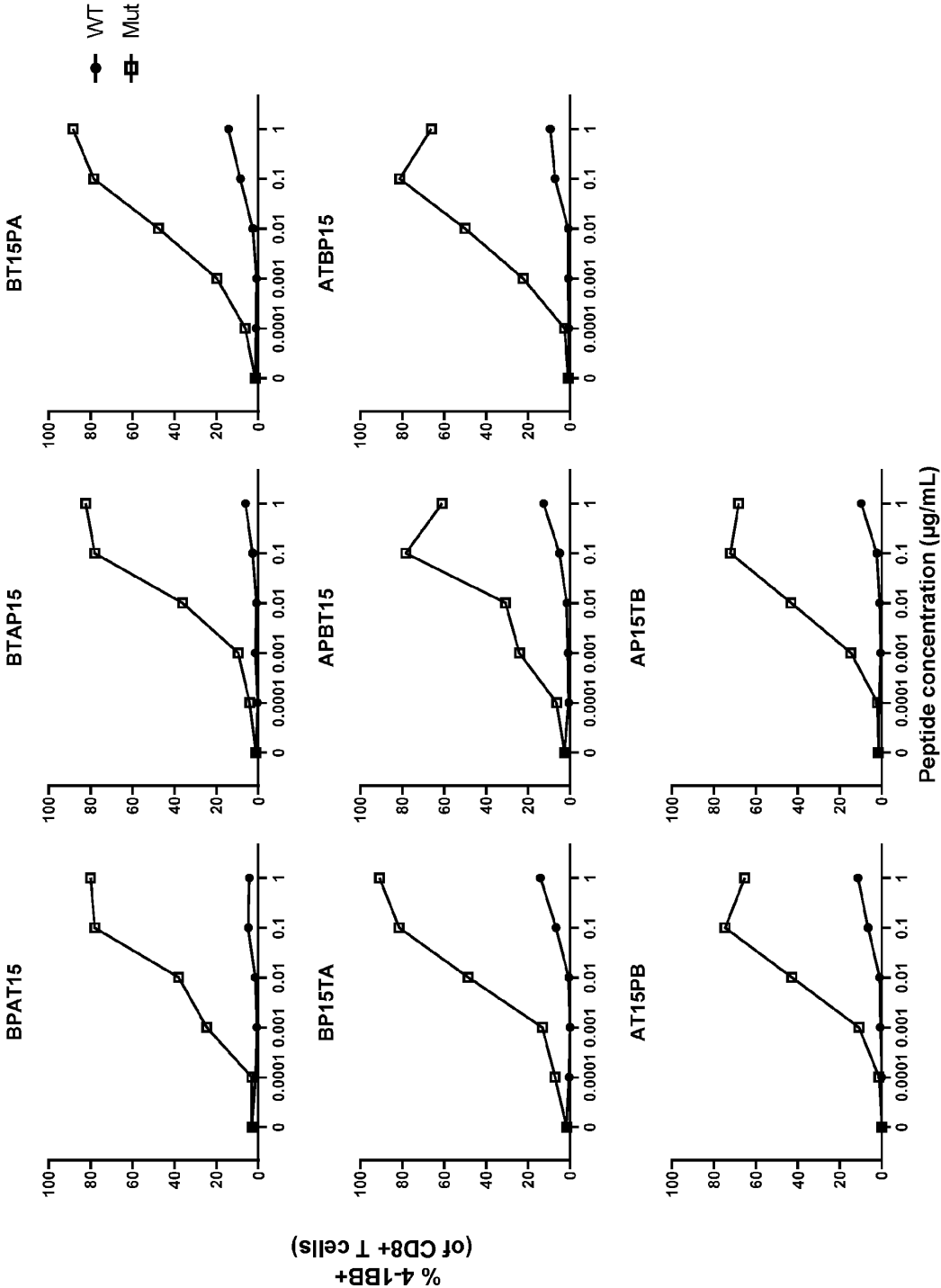


FIG. 9B

Phosphorylation of STAT5 after Expansion

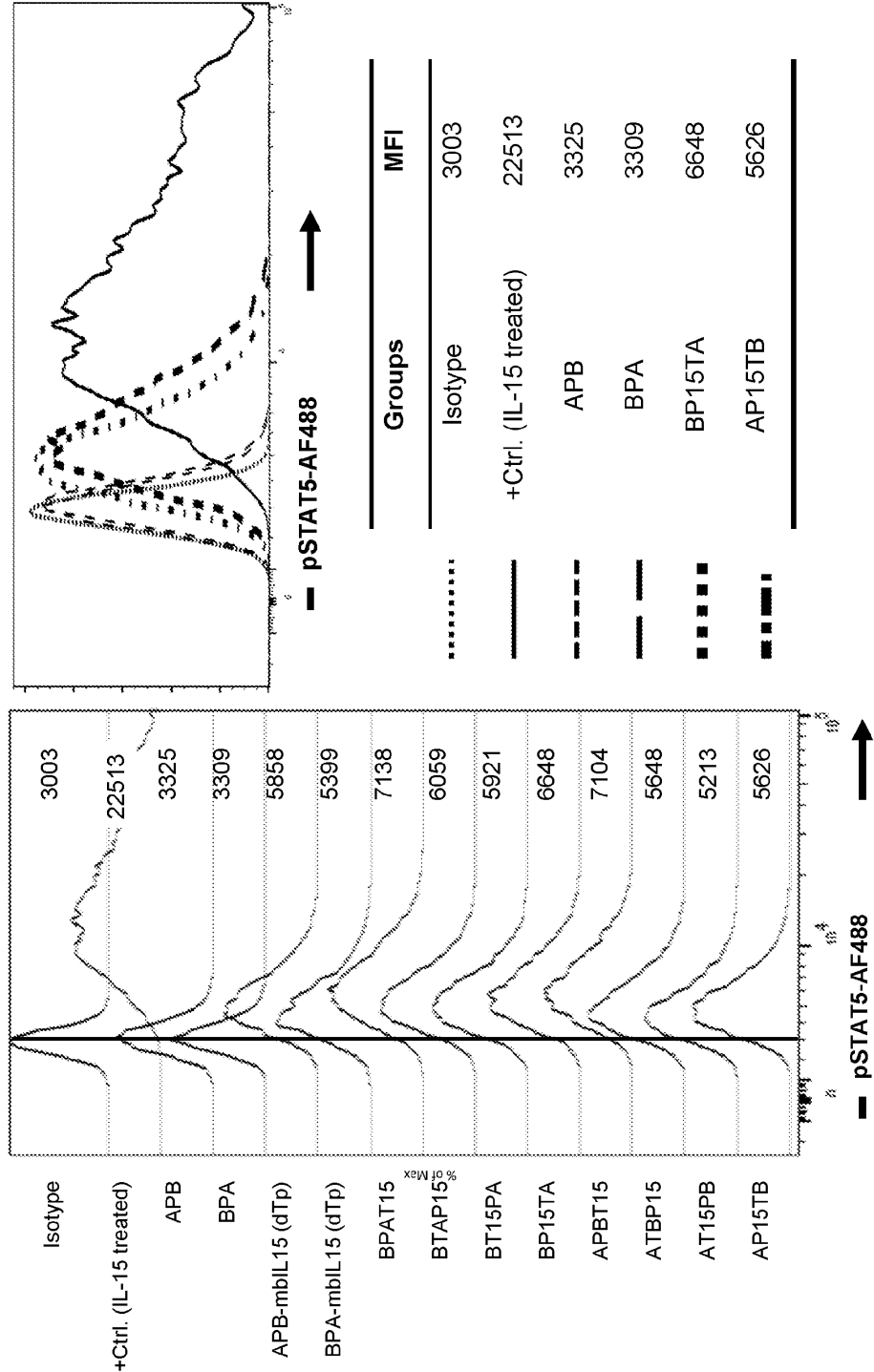


FIG. 10

Apoptosis of Transduced Cells after Activation

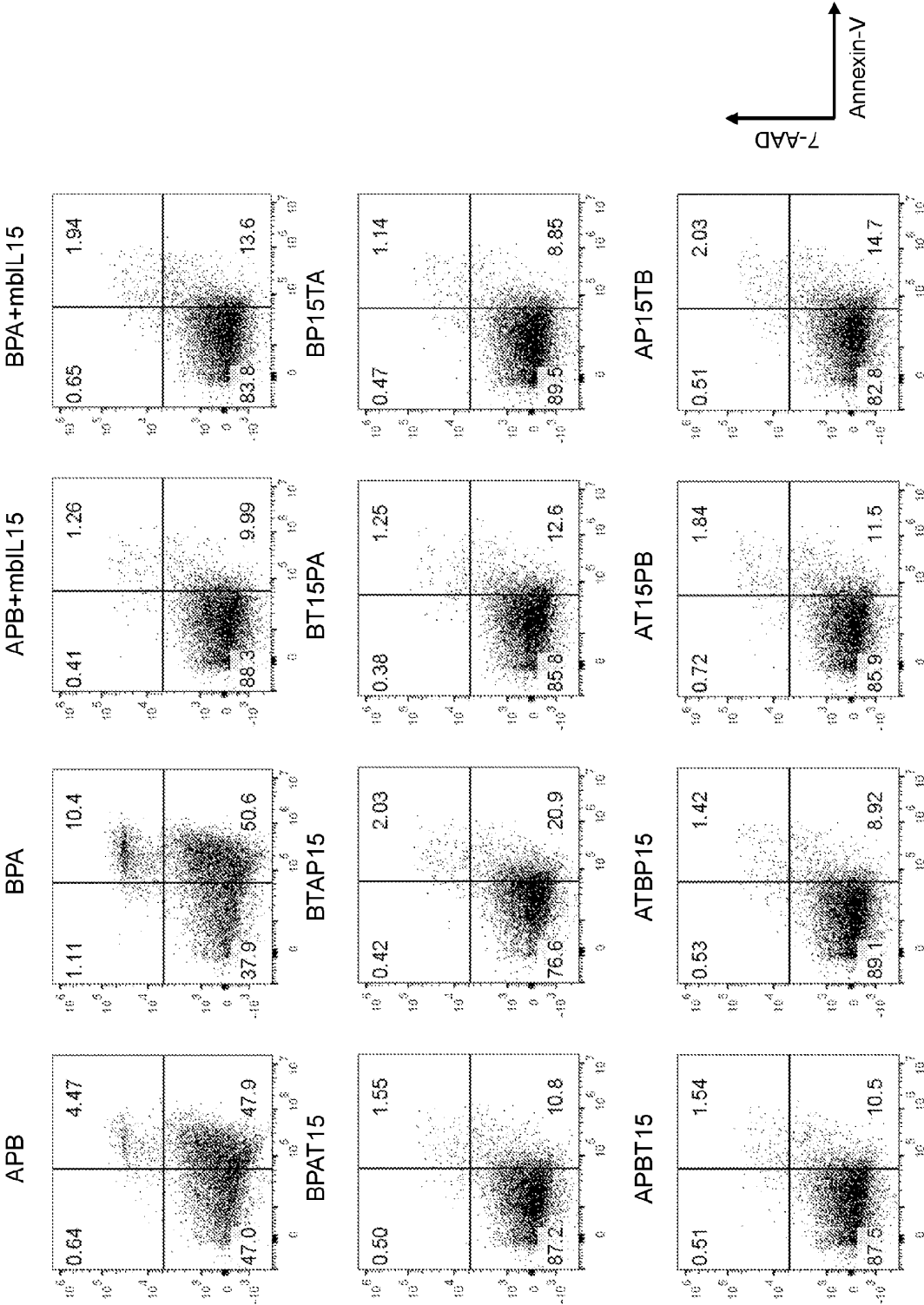


FIG. 11

Cassette ORF Schematic

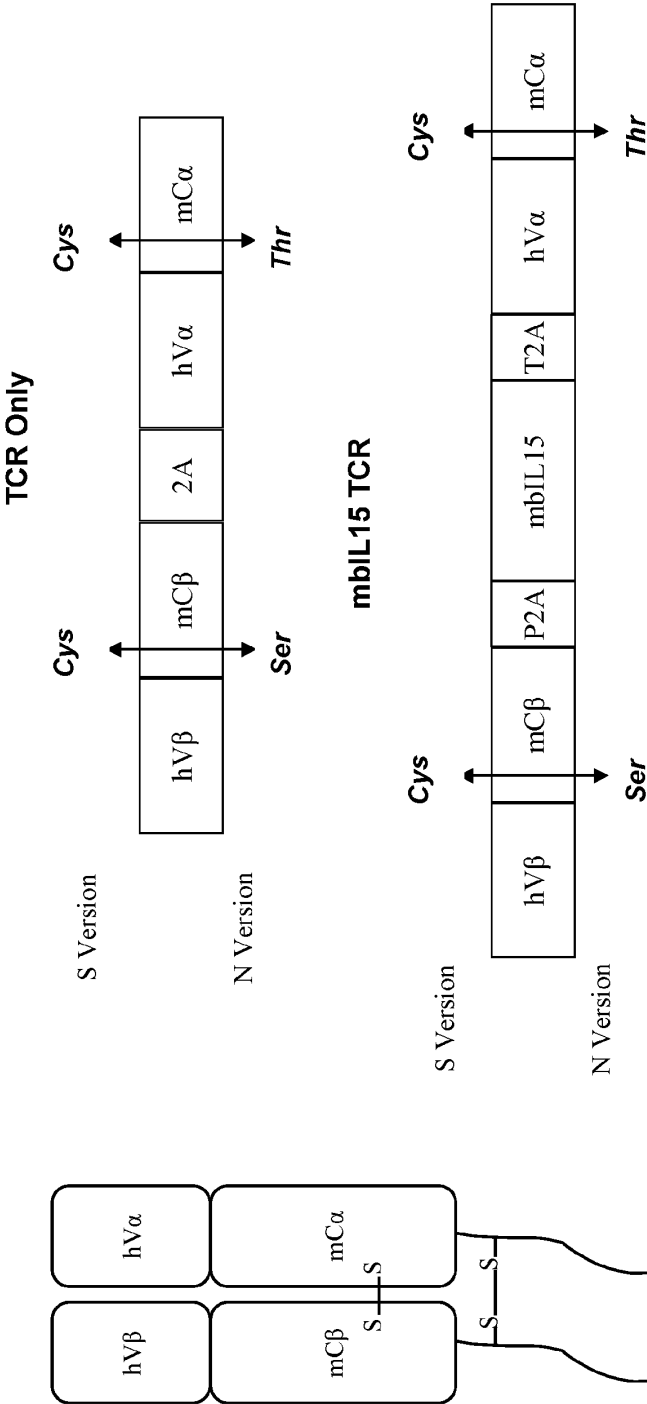


FIG. 12

TCR Expression at D1 (after EP) and D11 (Pre-enrichment)

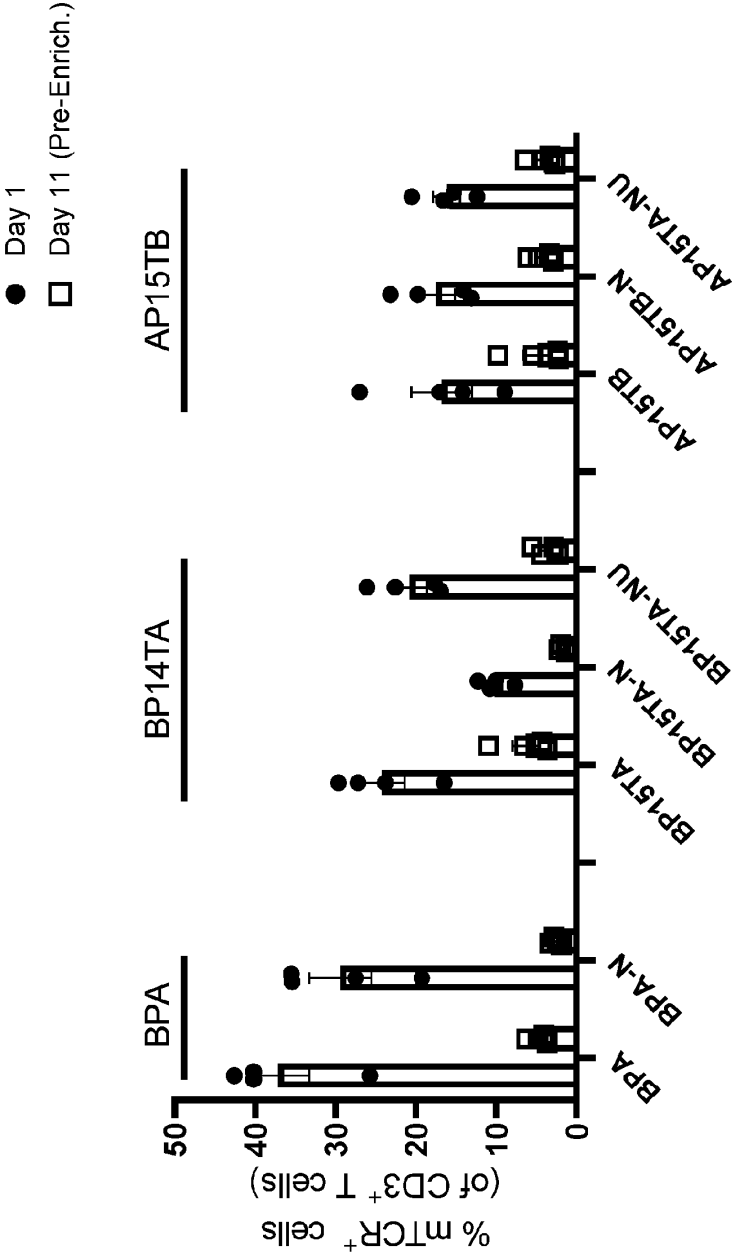


FIG. 13A

TCR Expression at D11 (Post-Enrichment) and D22 (after the Second Expansion Phase)

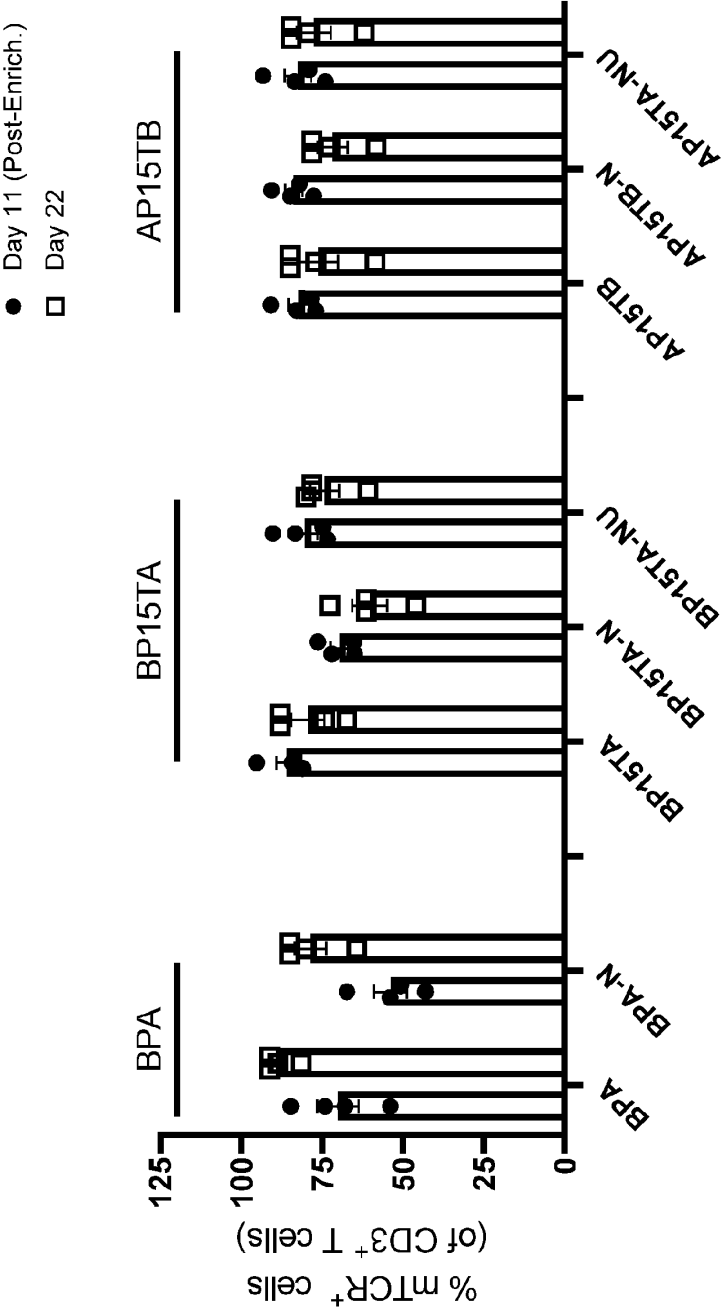


FIG. 13B

TCR+/mbIL15+ Expression at D1 (after EP) and D11 (Pre-enrichment)

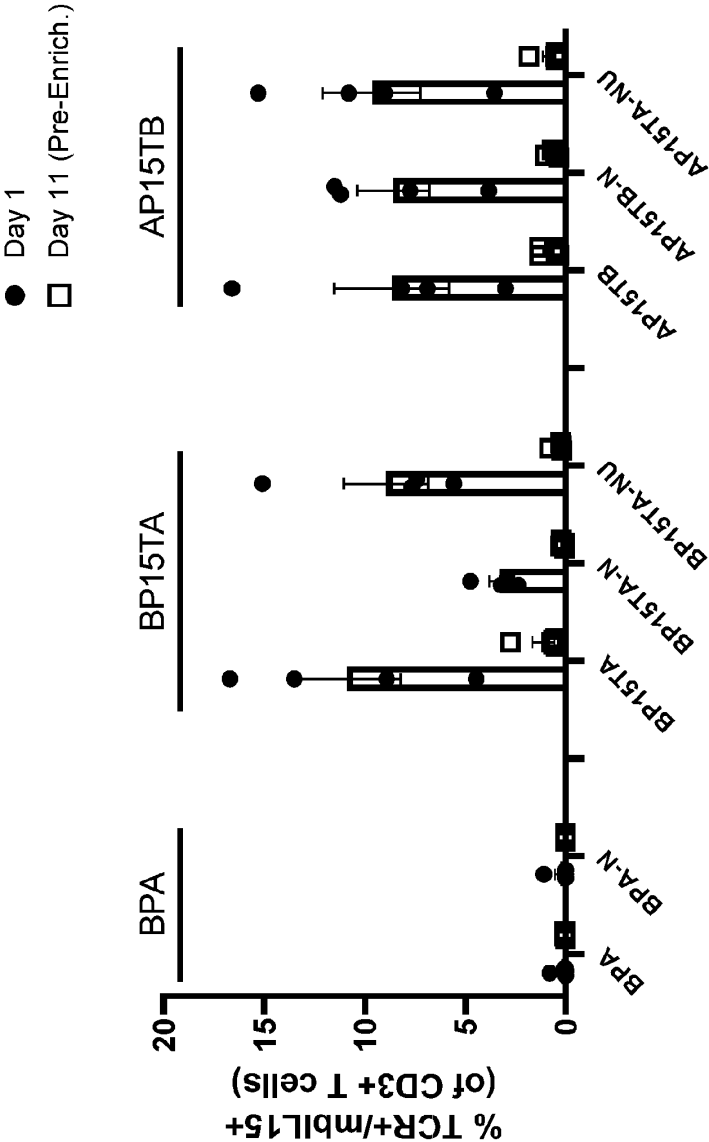


FIG. 14A

TCR+/mbIL15+ Expression at D11 (Post-Enrichment) and D22
(after the Second Expansion Phase)

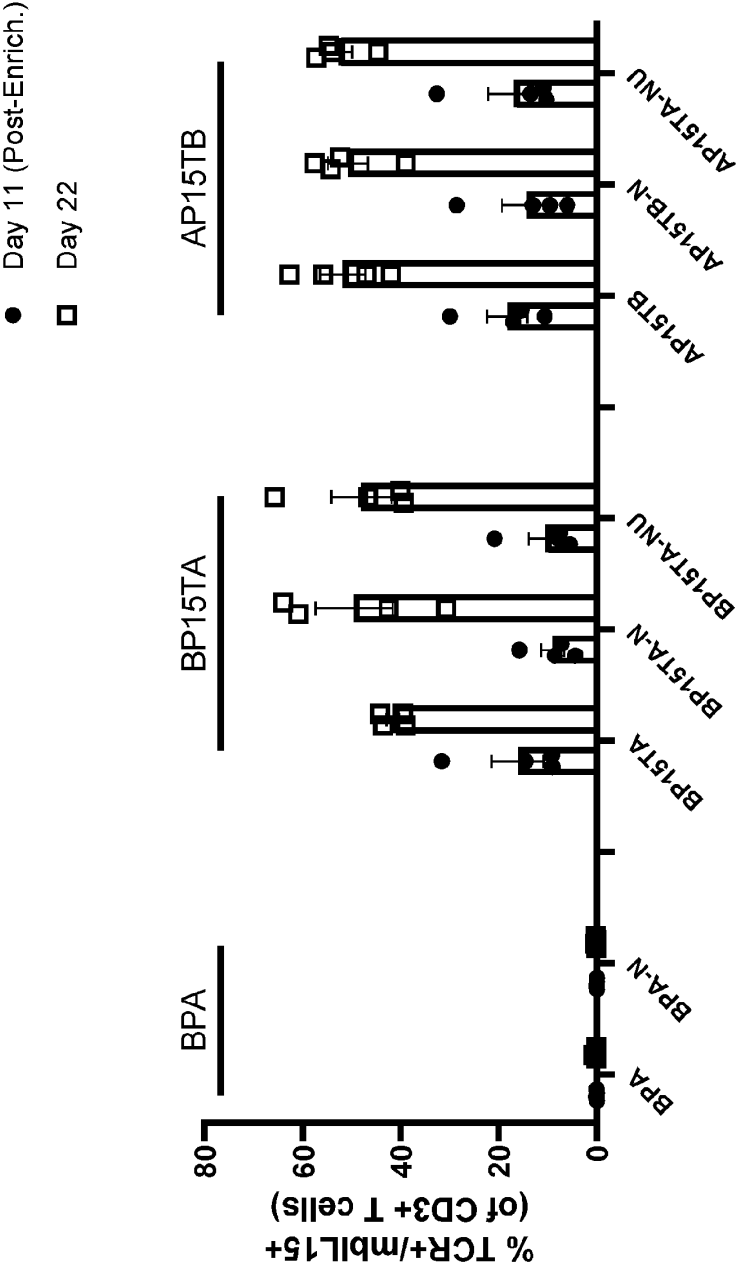


FIG. 14B

TCR and mbIL15 Expression after Second Expansion Phase

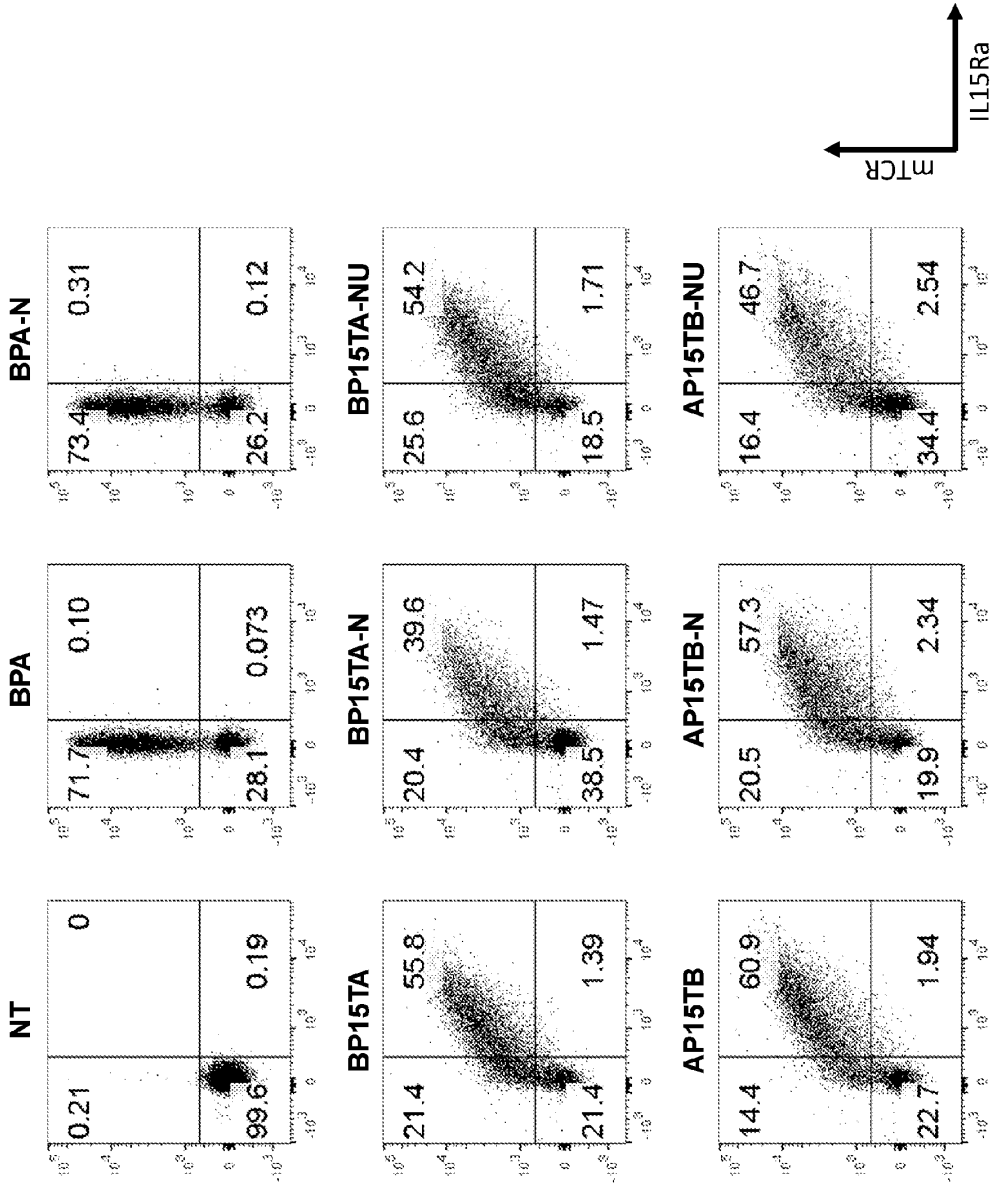


FIG. 15

25/106

Fold Expansion of Cells after First Expansion Phase

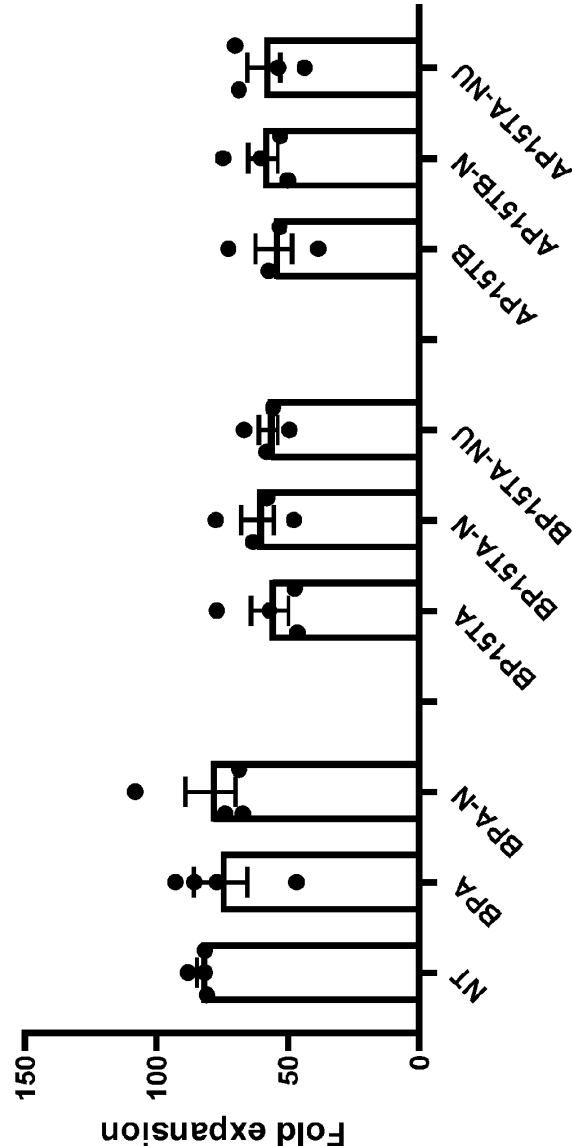


FIG. 16A

Fold Expansion of Cells after Second Expansion Phase

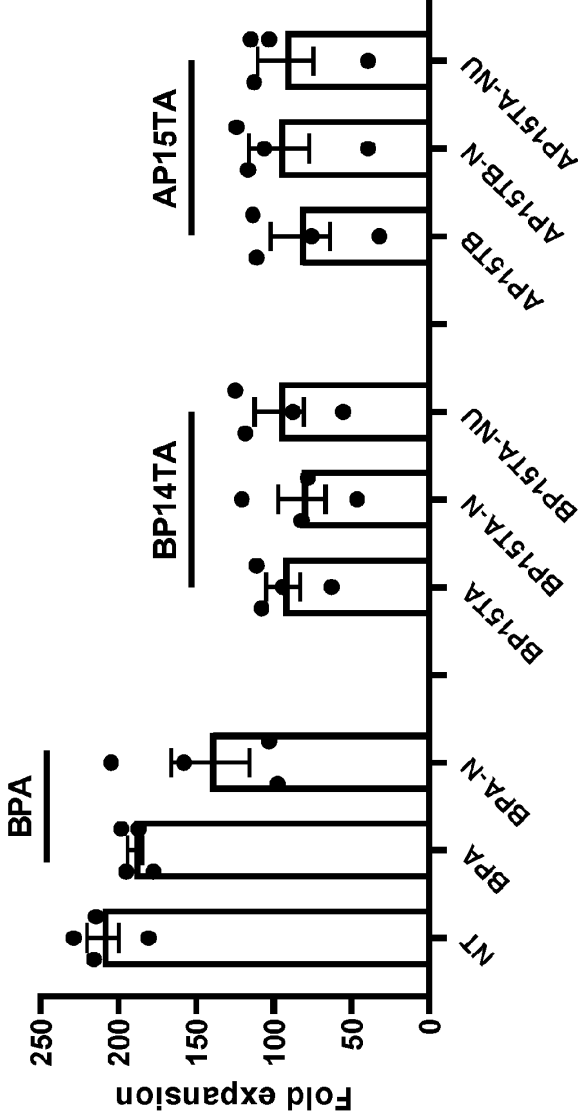


FIG. 16B

Absolute TCR+ Cell Numbers during First Expansion Phase

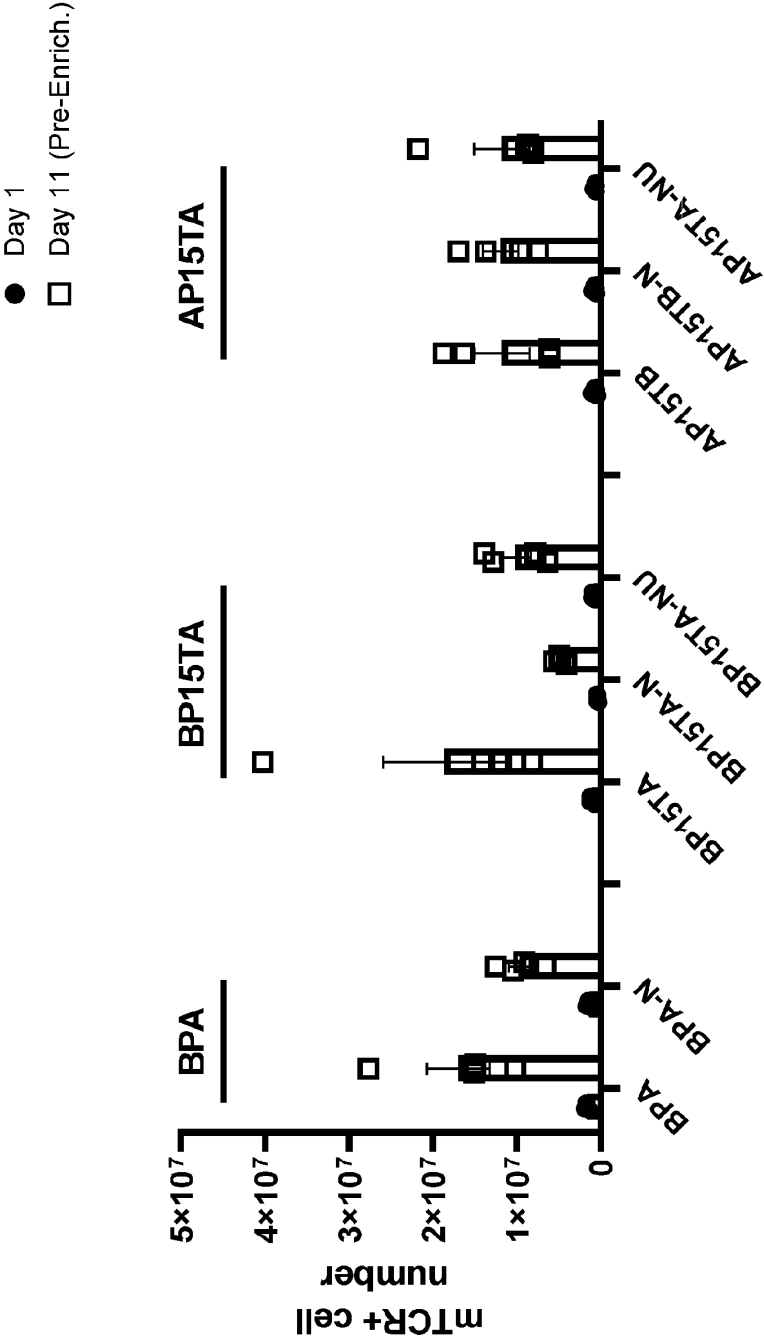


FIG. 17A

Absolute TCR+ Cell Numbers during Second Expansion Phase

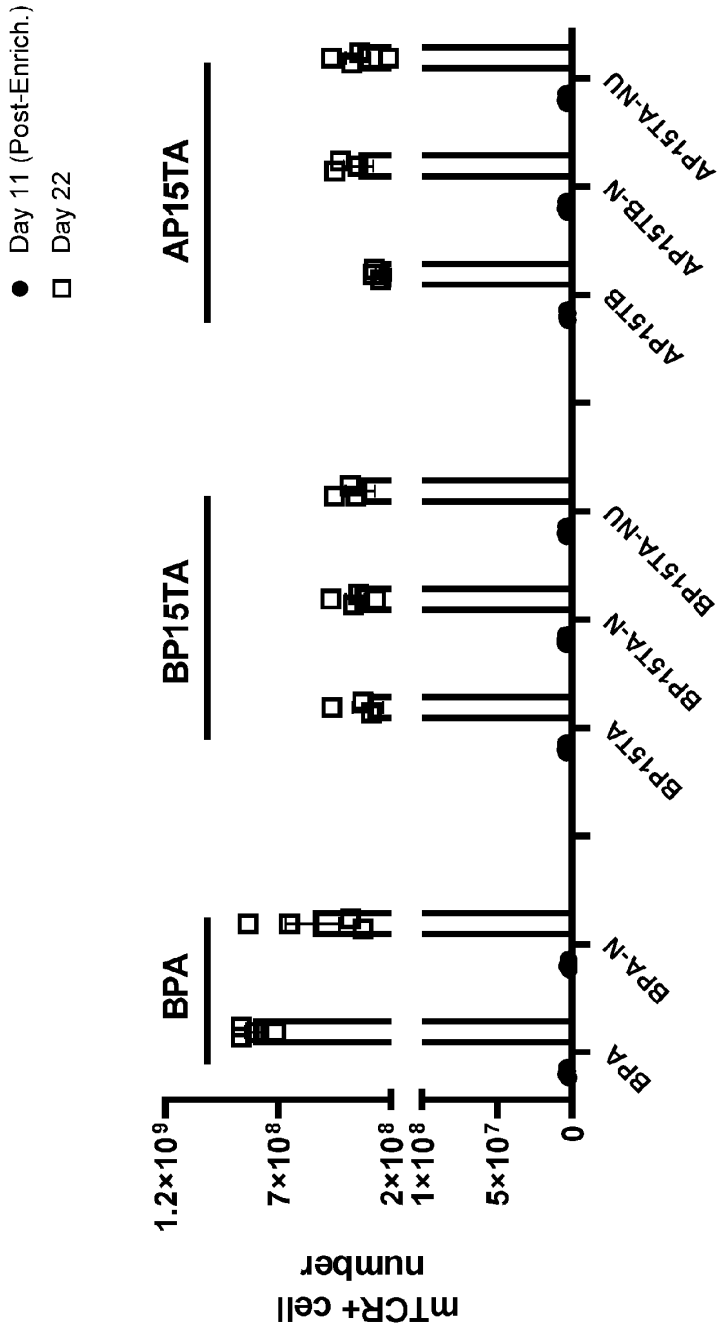


FIG. 17B

Phosphorylation of STAT5 at D27 after Second Phase Expansion

TCR001

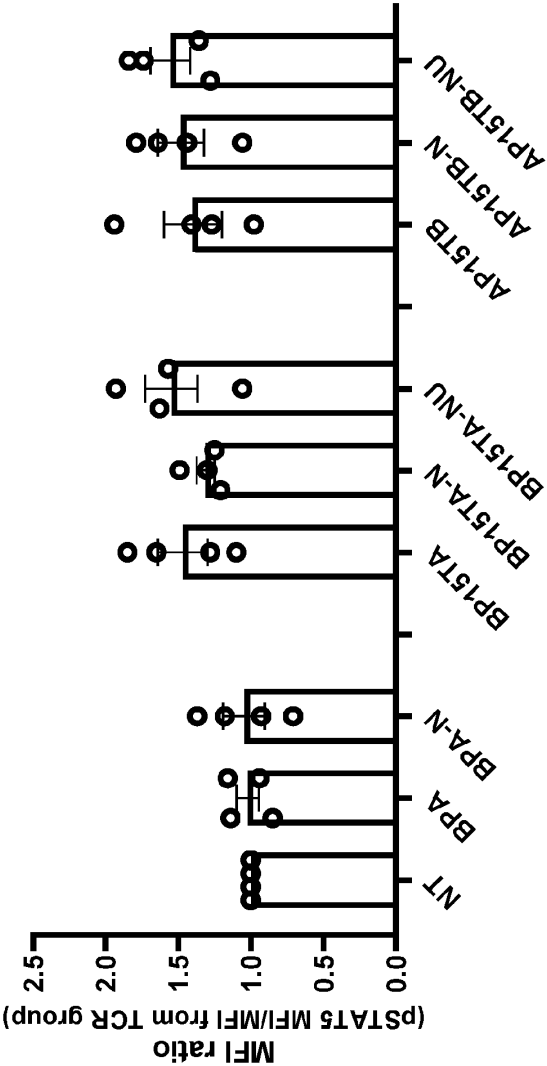


FIG. 18

Antigen-Specific Induction of 4-1BB at D27 after Expansion

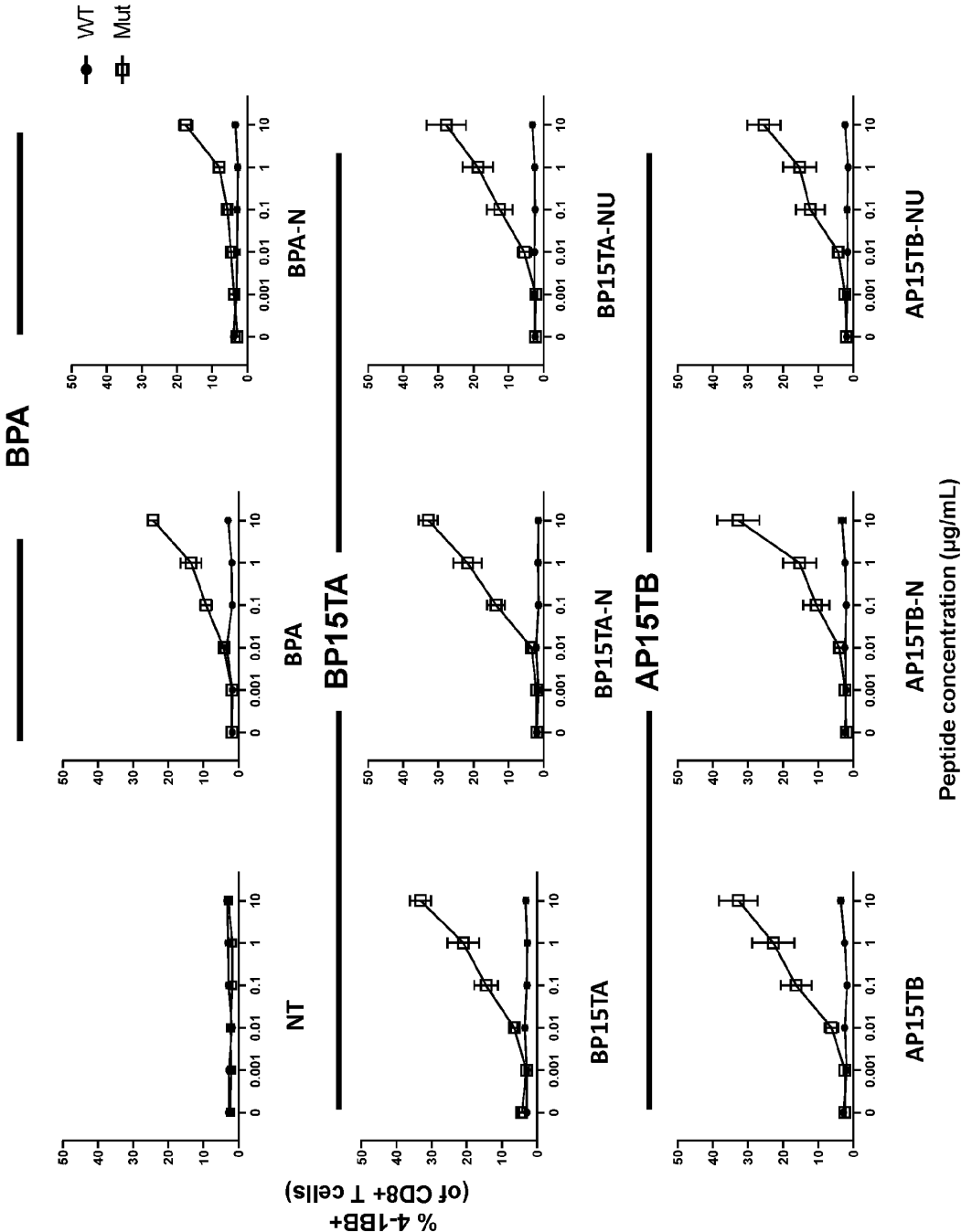
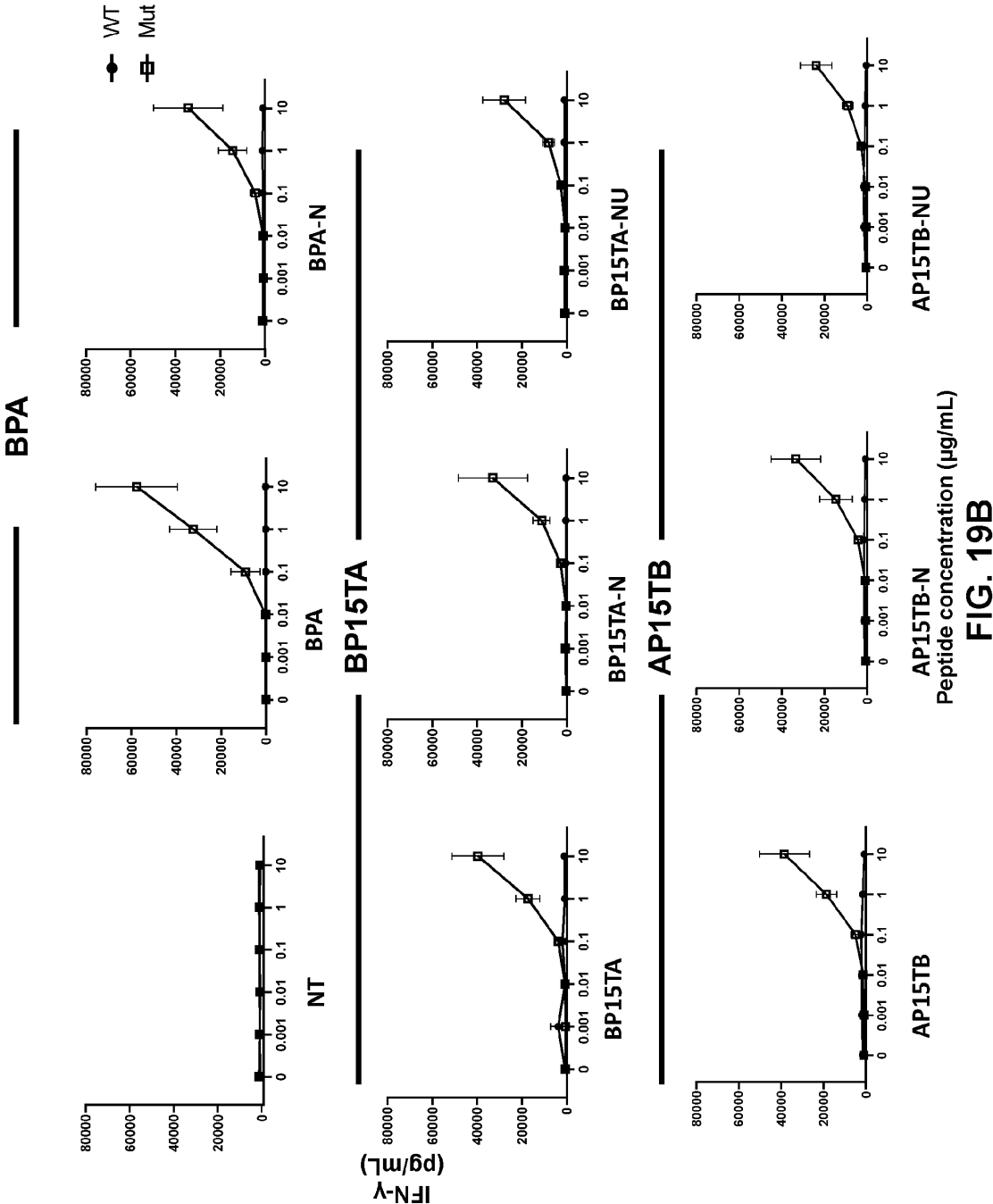


FIG. 19A

IFN- γ Secretion after Expansion



TCR+ population after LTWD culture

TCR001

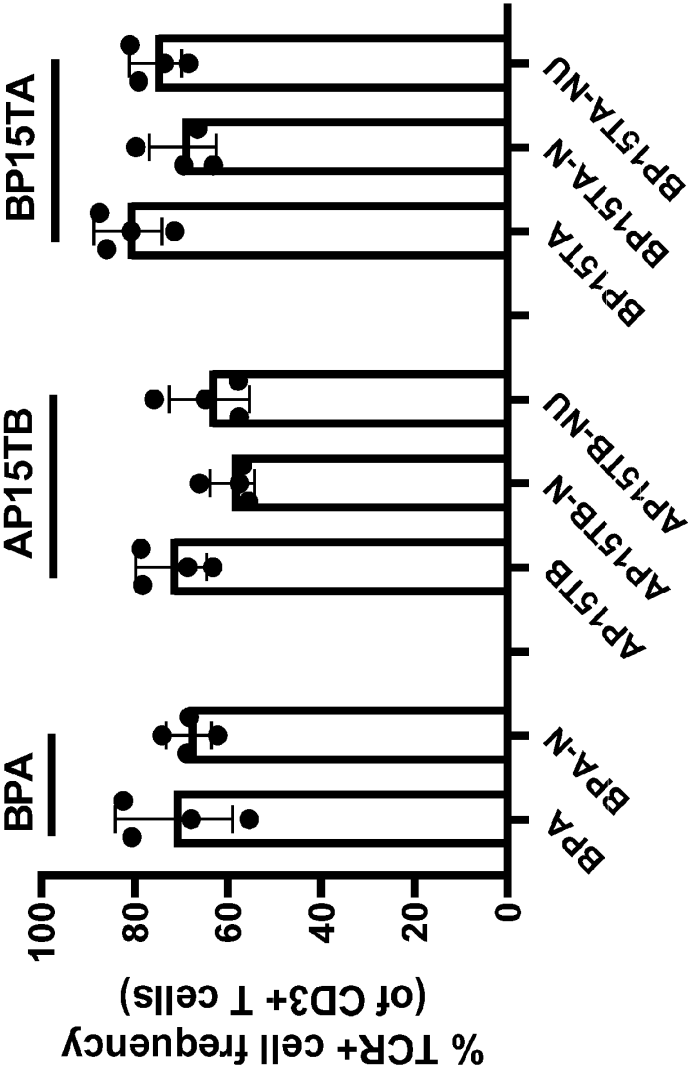


FIG. 20A

Cell Survival after LTWD culture

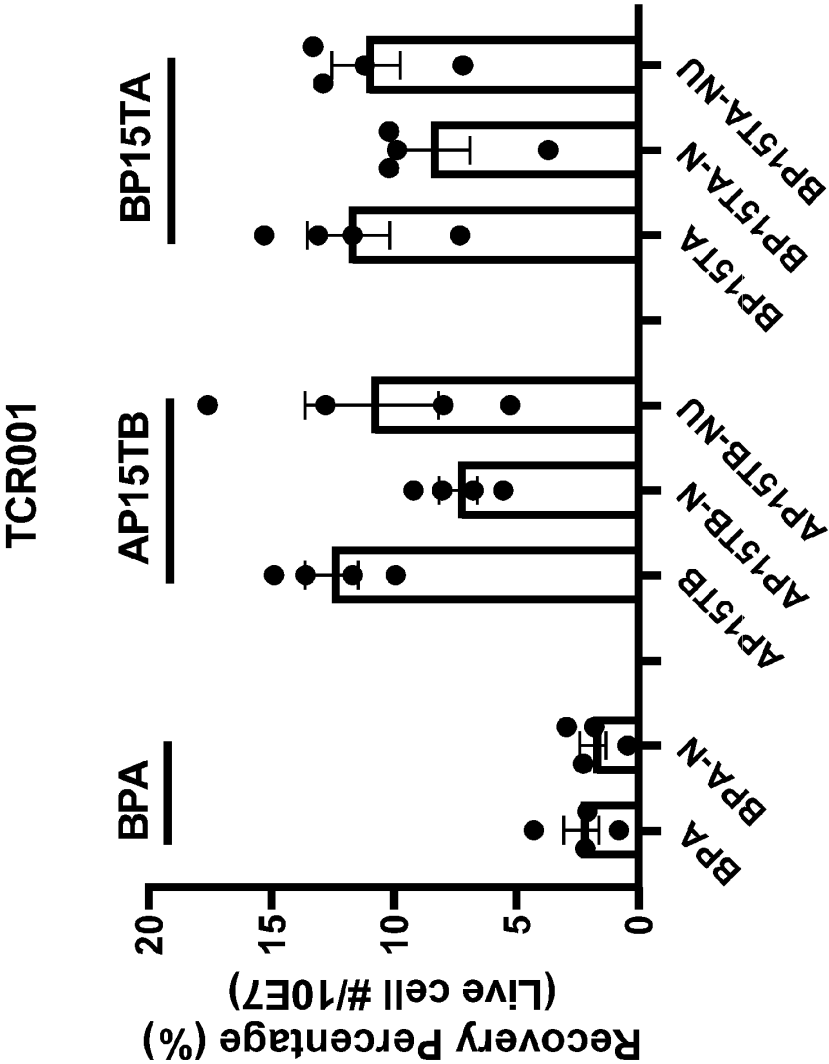


FIG. 20B

4-1BB Induction after LTWD culture

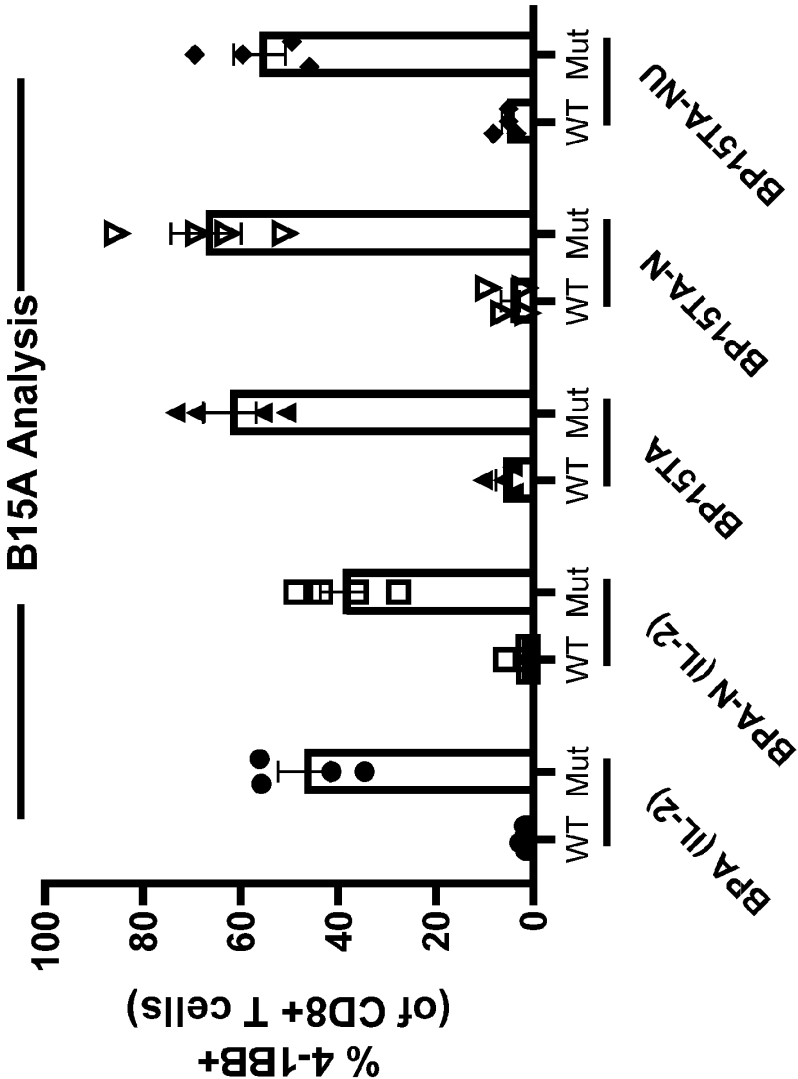


FIG. 21A

4-1BB Induction after LTWD culture

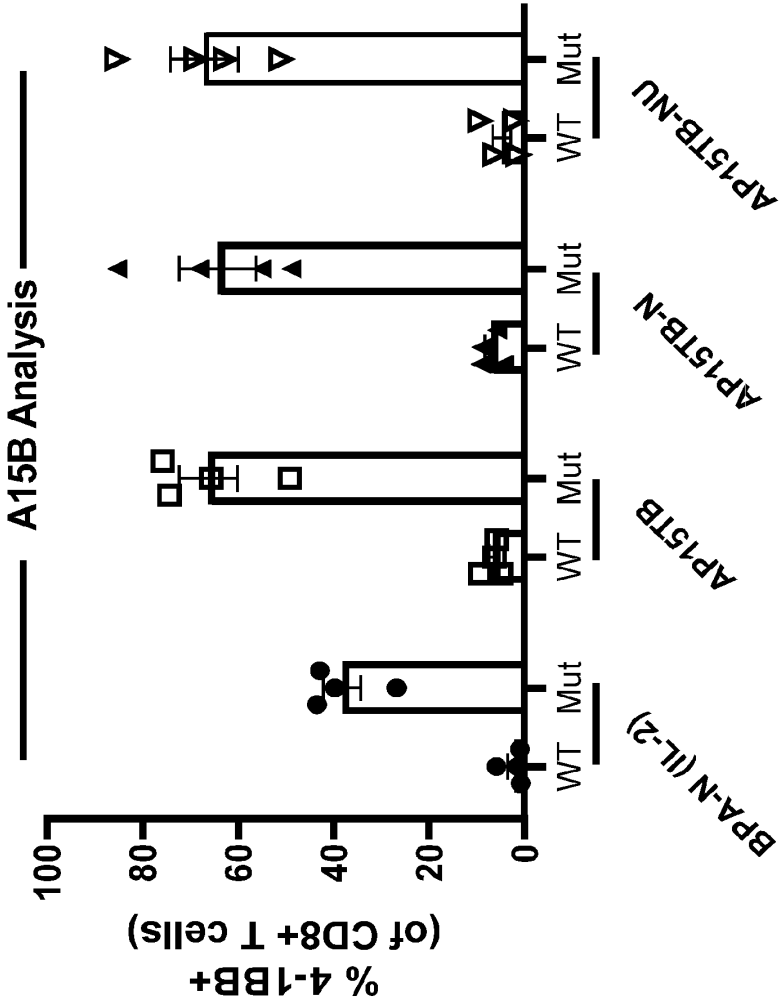


FIG. 21B

IFN- γ Secretion after LTWD culture

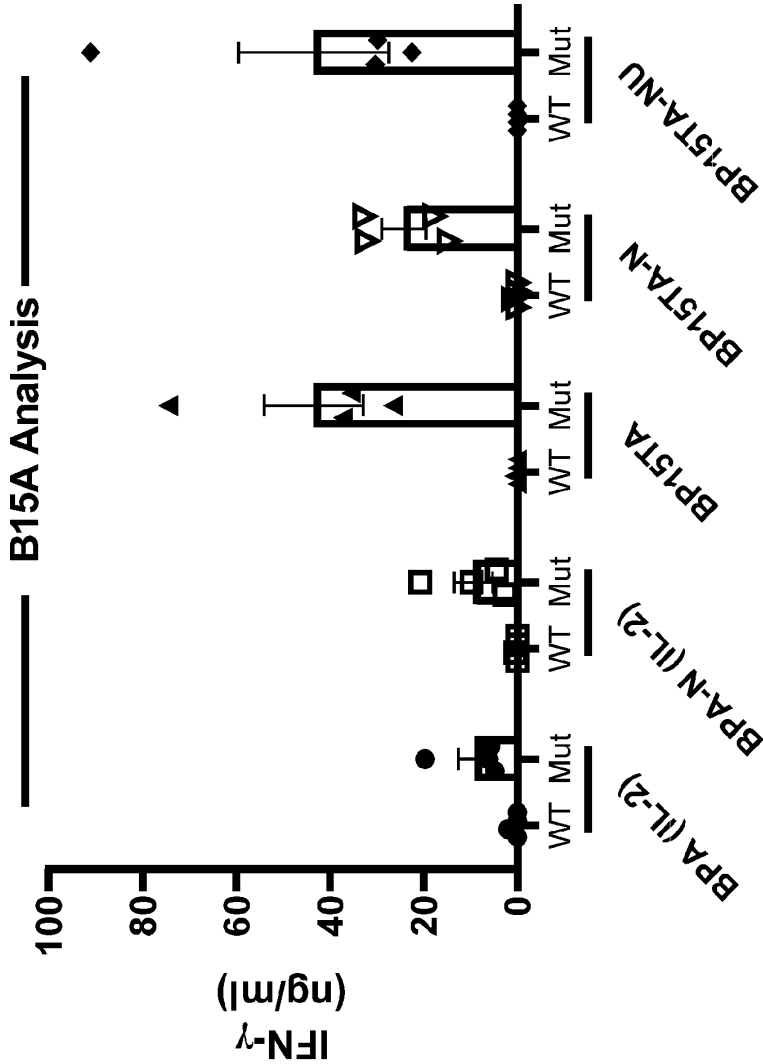


FIG. 22A

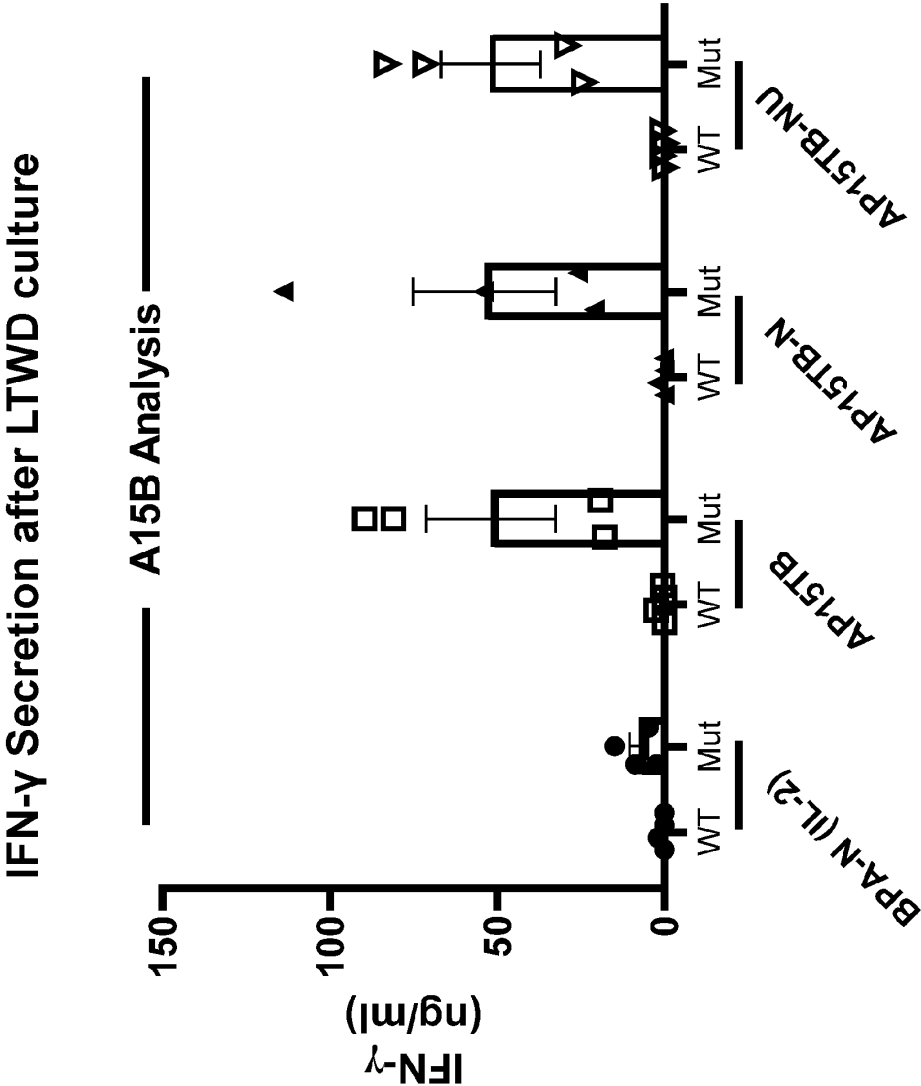
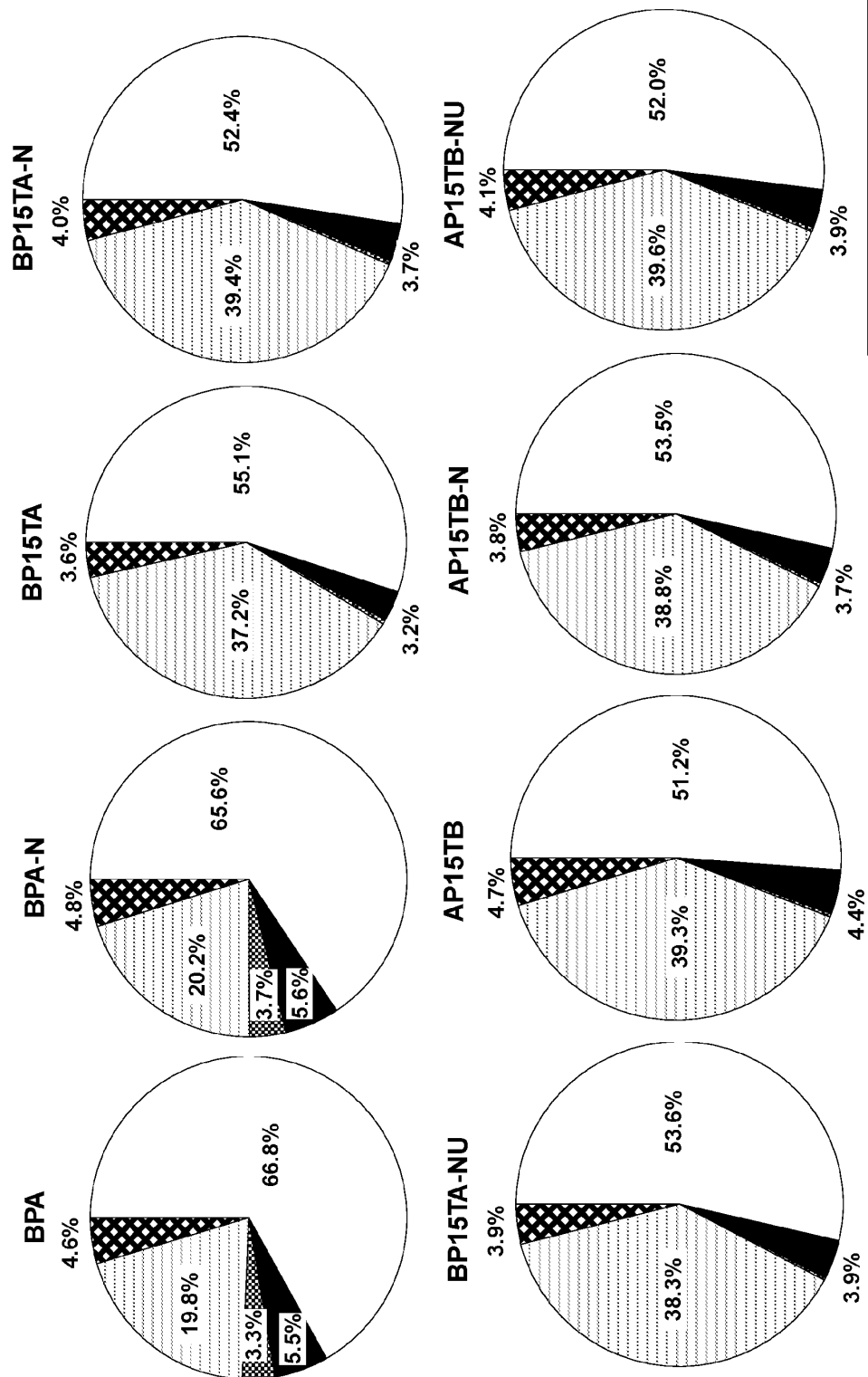


FIG. 22B

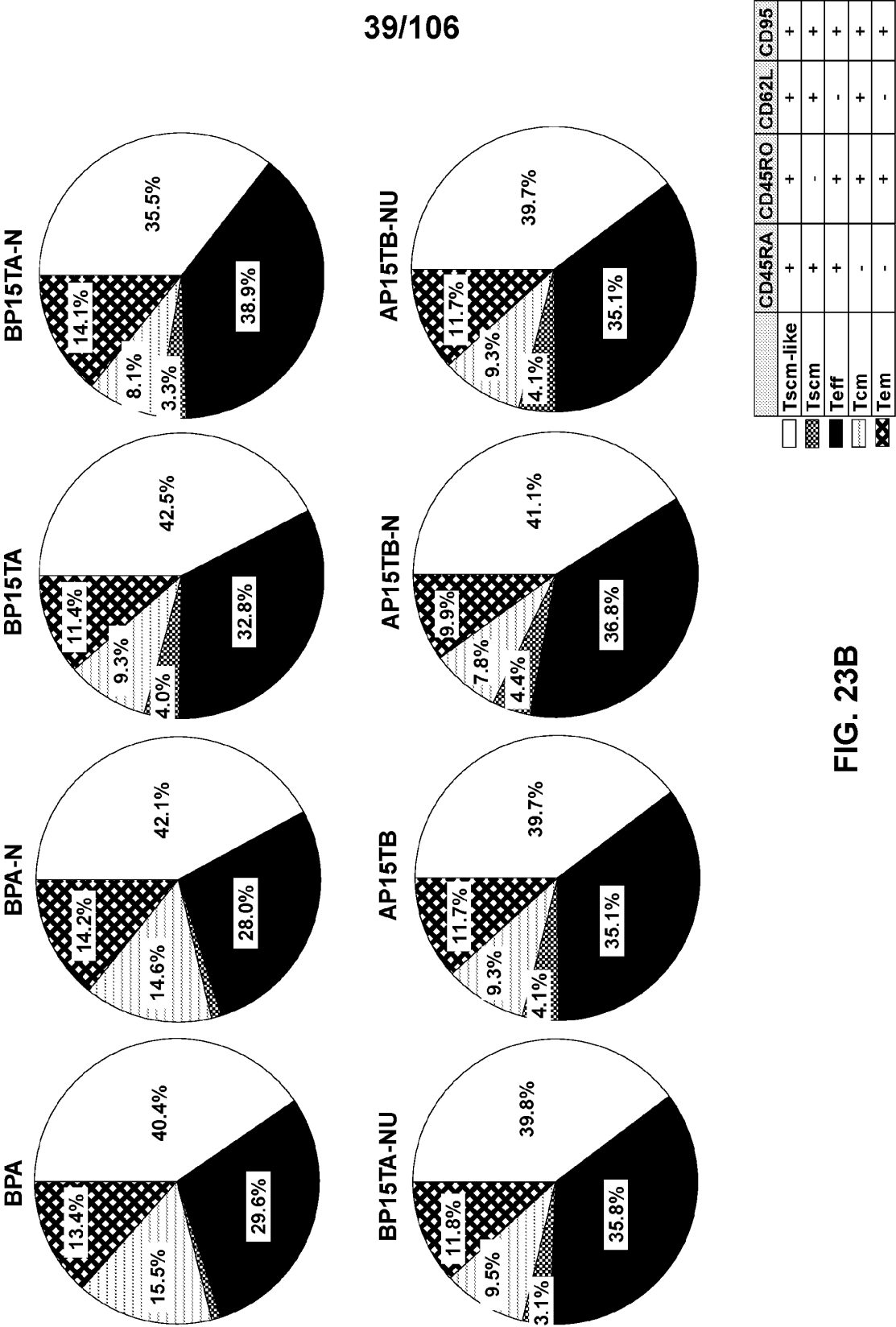
Memory Phenotype of Engineered T cells at D11



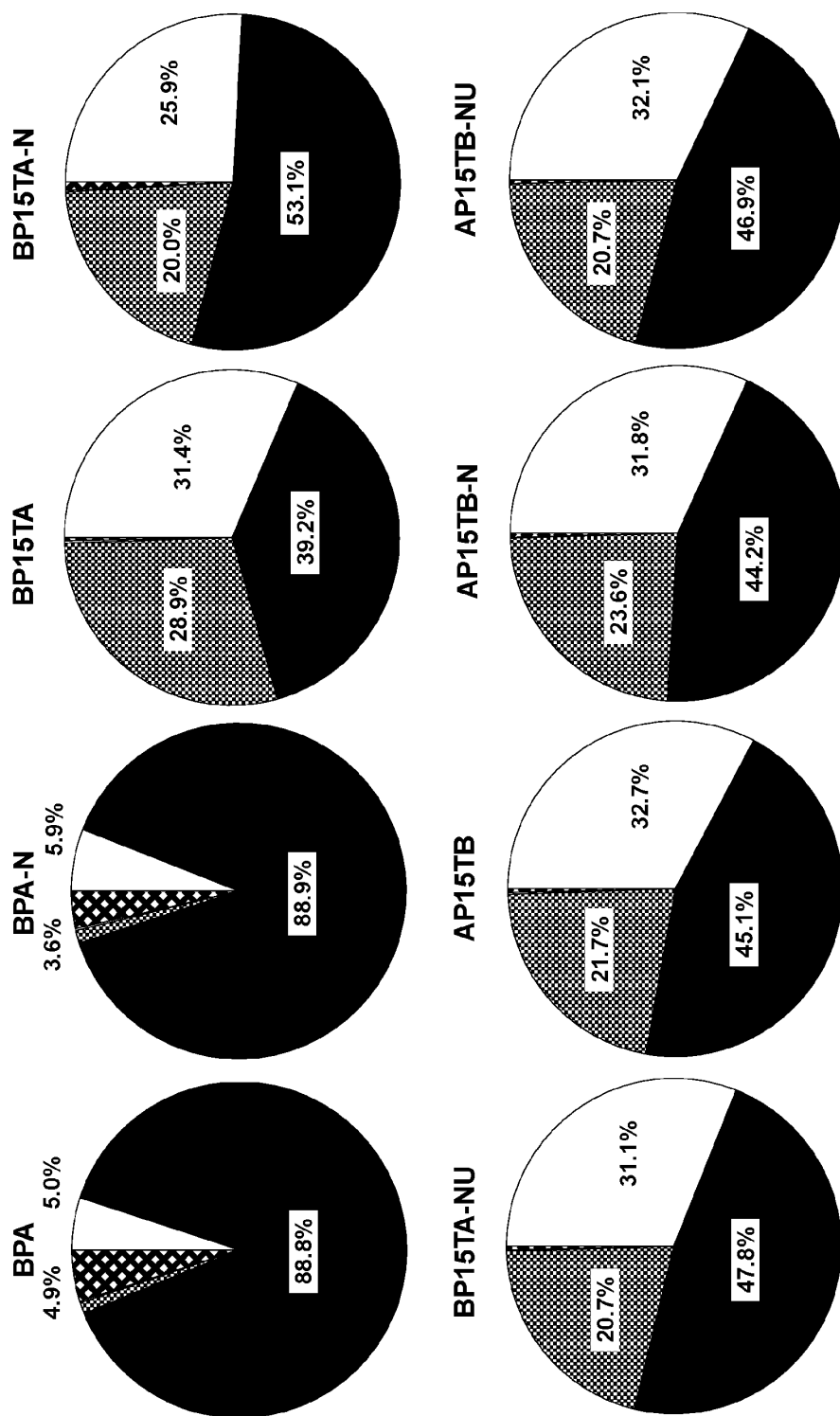
	CD45RA	CD45RO	CD62L	CD95
Tscm-like	+	+	+	+
Tscm	+	-	+	+
Teff	+	+	-	+
Tcm	-	+	+	+
Tm	-	+	-	+

FIG. 23A

Memory Phenotype of Engineered T cells at D22



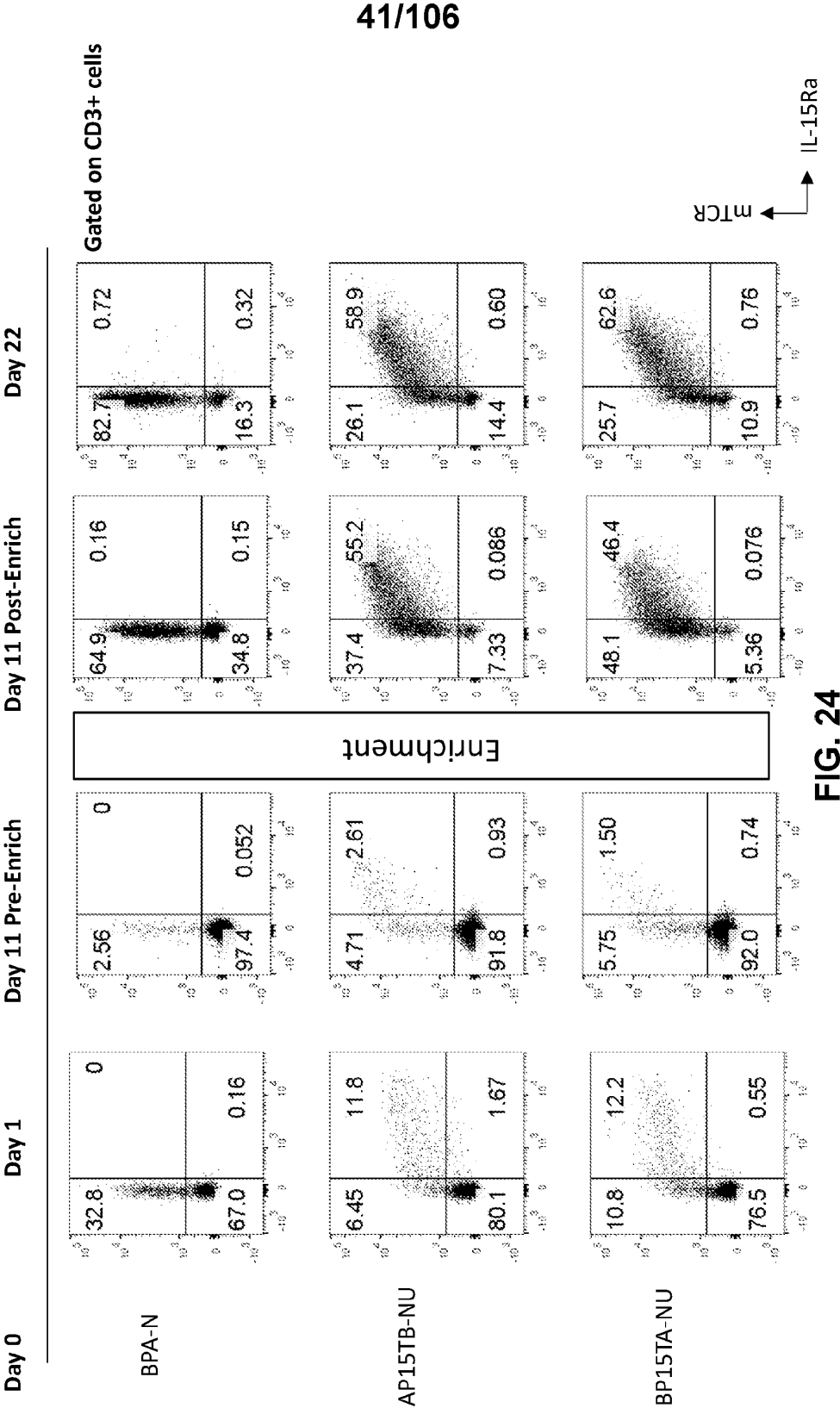
40/106



	CD45RA	CD45RO	CD62L	CD95
Tscm-like	+	+	+	+
Tscm	+	-	+	+
Teff	+	+	-	+
Tcm	-	+	+	+
Tem	-	+	-	+

FIG. 23C

TCR & mbIL15 Expression During First and Second Expansion Phases



BPA-N

AP15TB-NU

BP15TA-NU

Enrichment

Gated on CD3+ cells

mTCR

IL-15Ra

FIG. 24

TCR+ Population Changes During First Expansion Phase

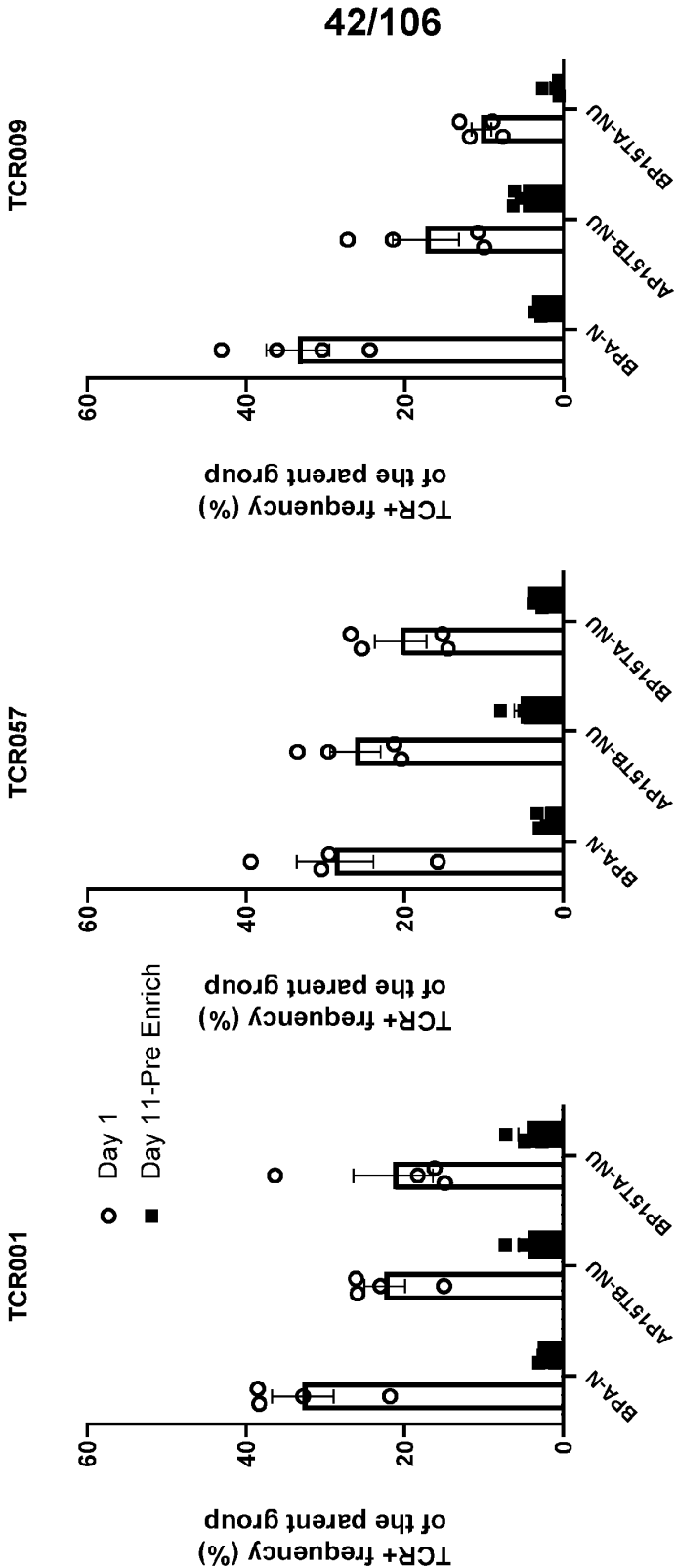


FIG. 25A

TCR+ Population Changes During First Expansion Phase

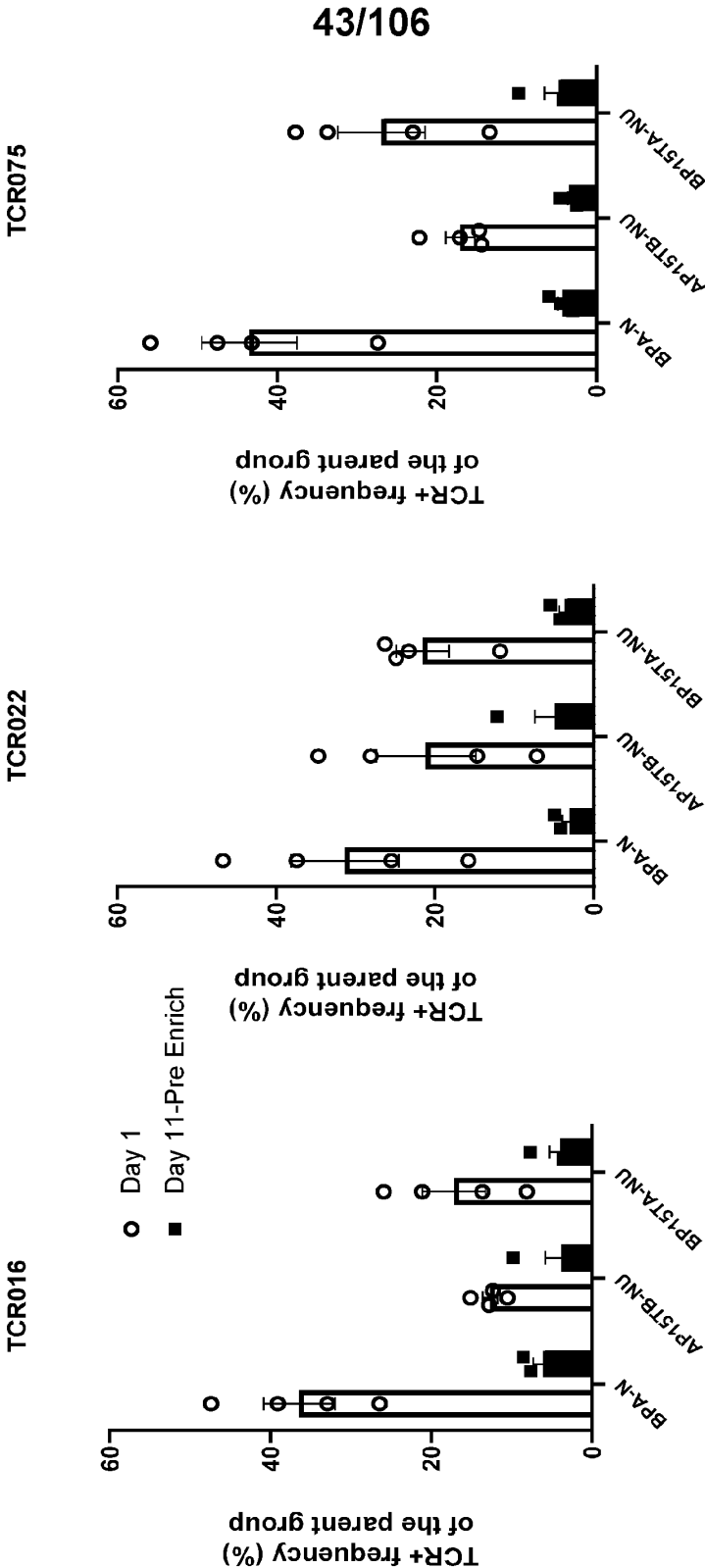


FIG. 25B

TCR+ Population Changes During First Expansion Phase

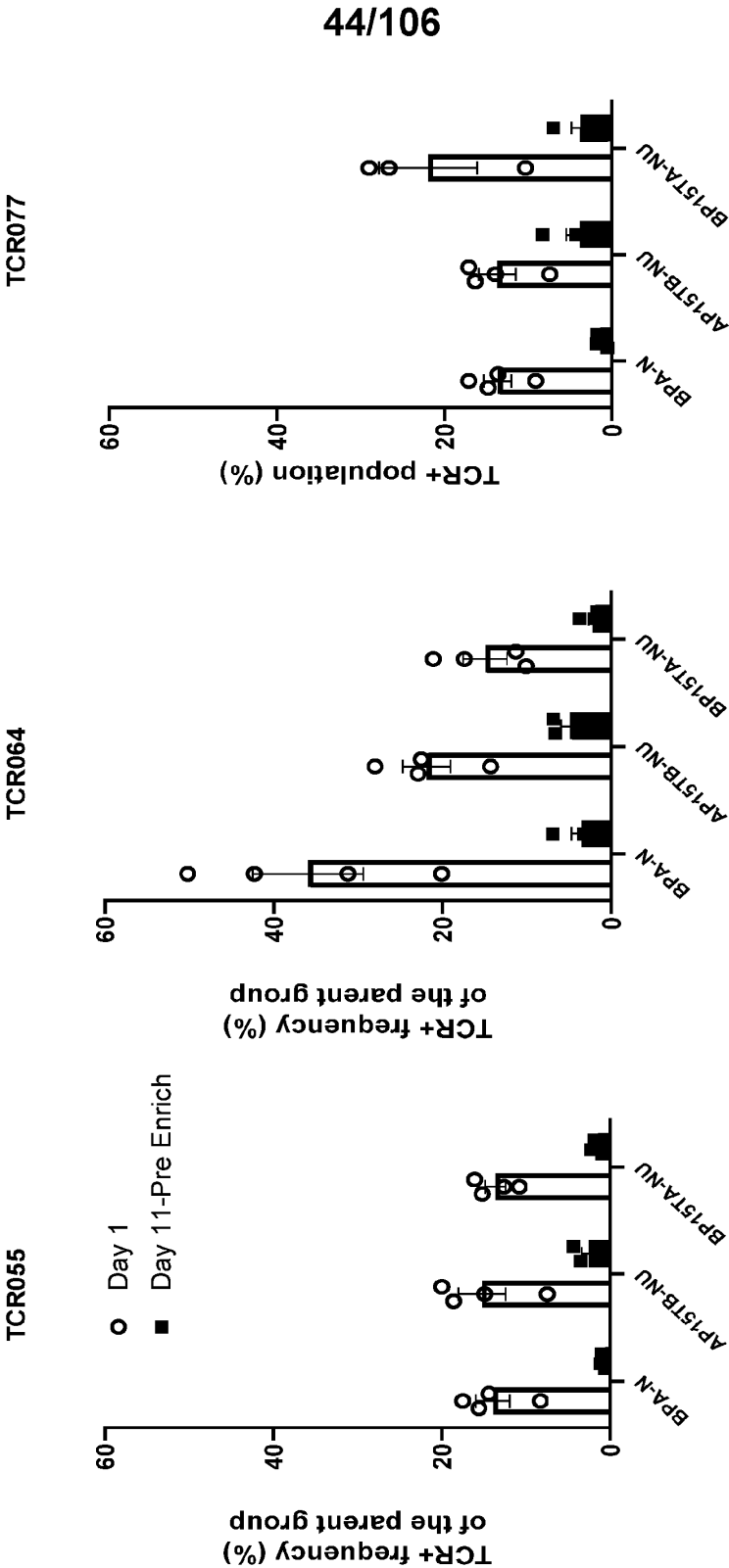


FIG. 25C

TCR+ Population Changes During Second Expansion Phase

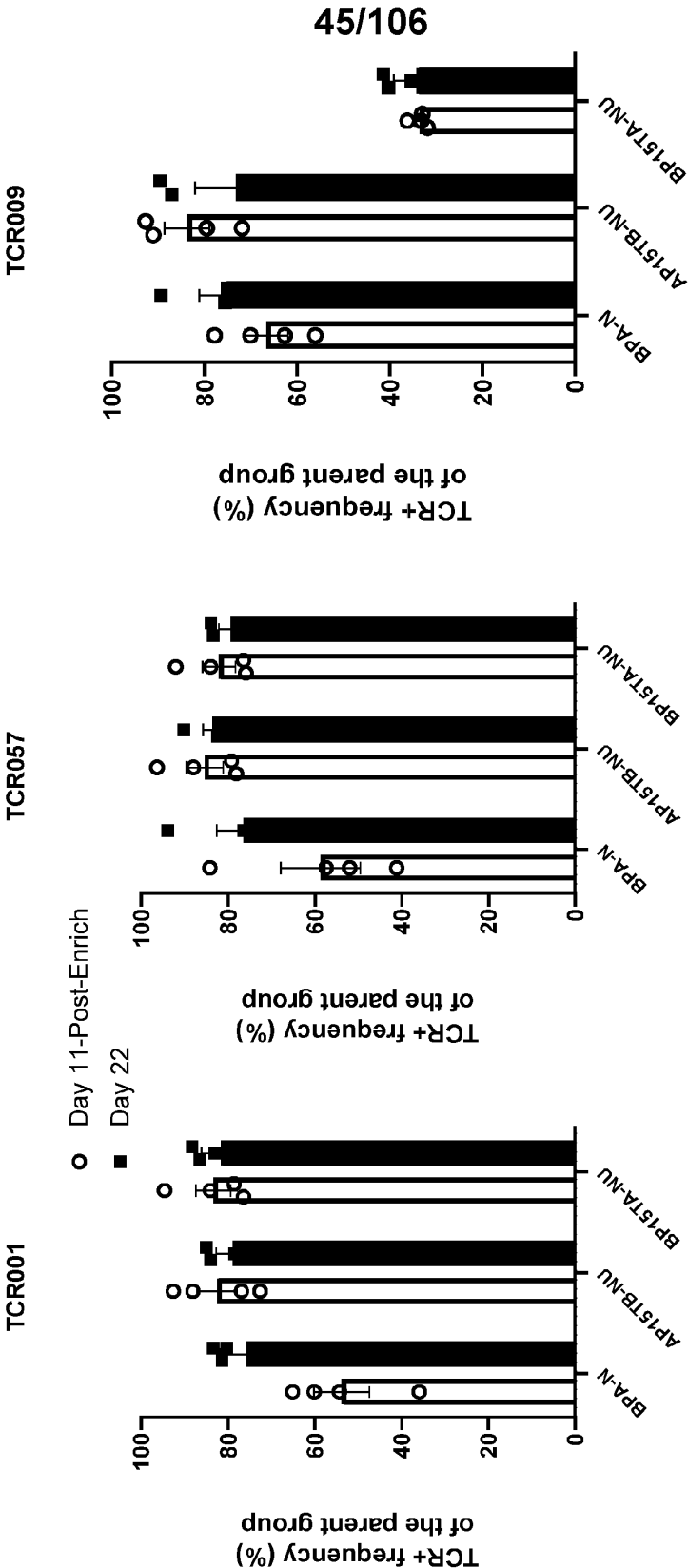


FIG. 26A

TCR+ Population Changes During Second Expansion Phase

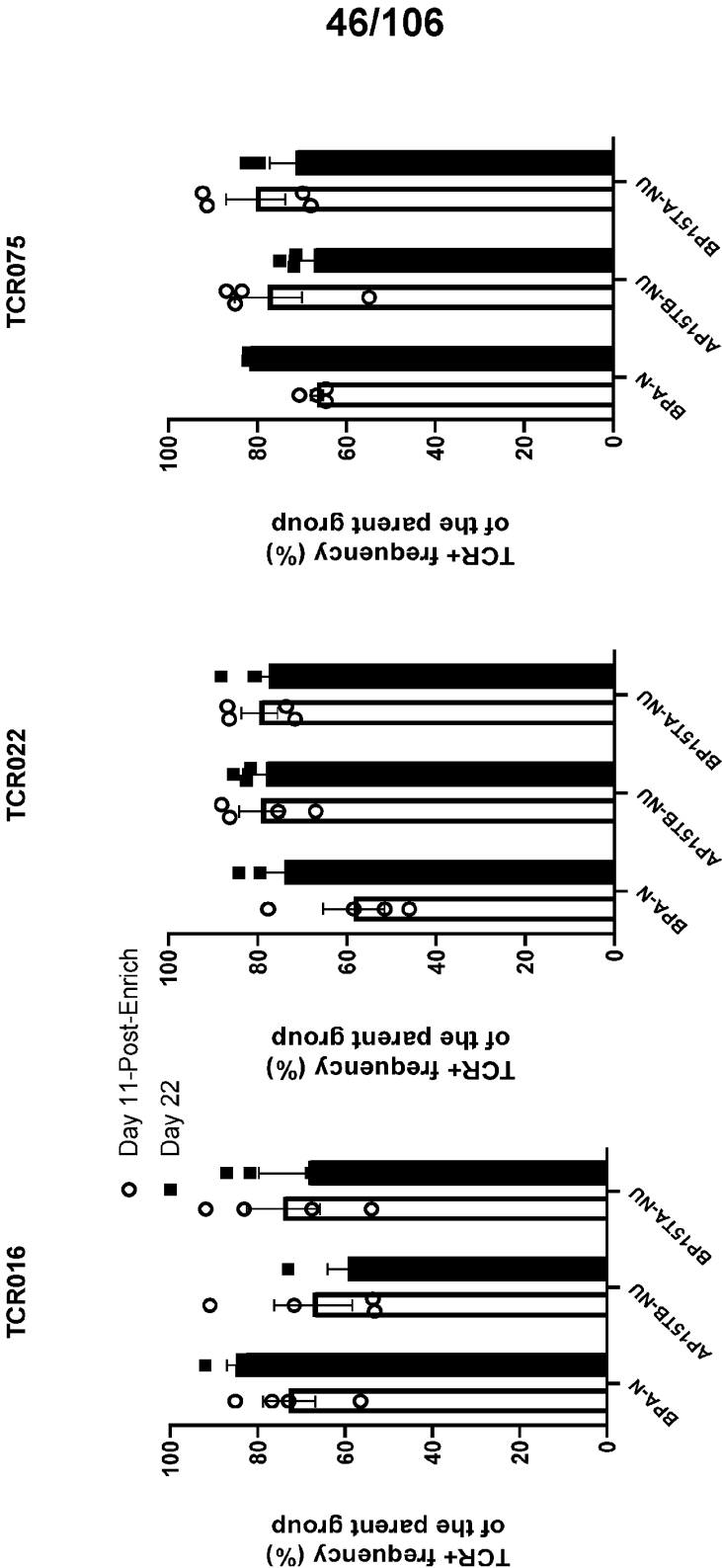


FIG. 26B

TCR+ Population Changes During Second Expansion Phase

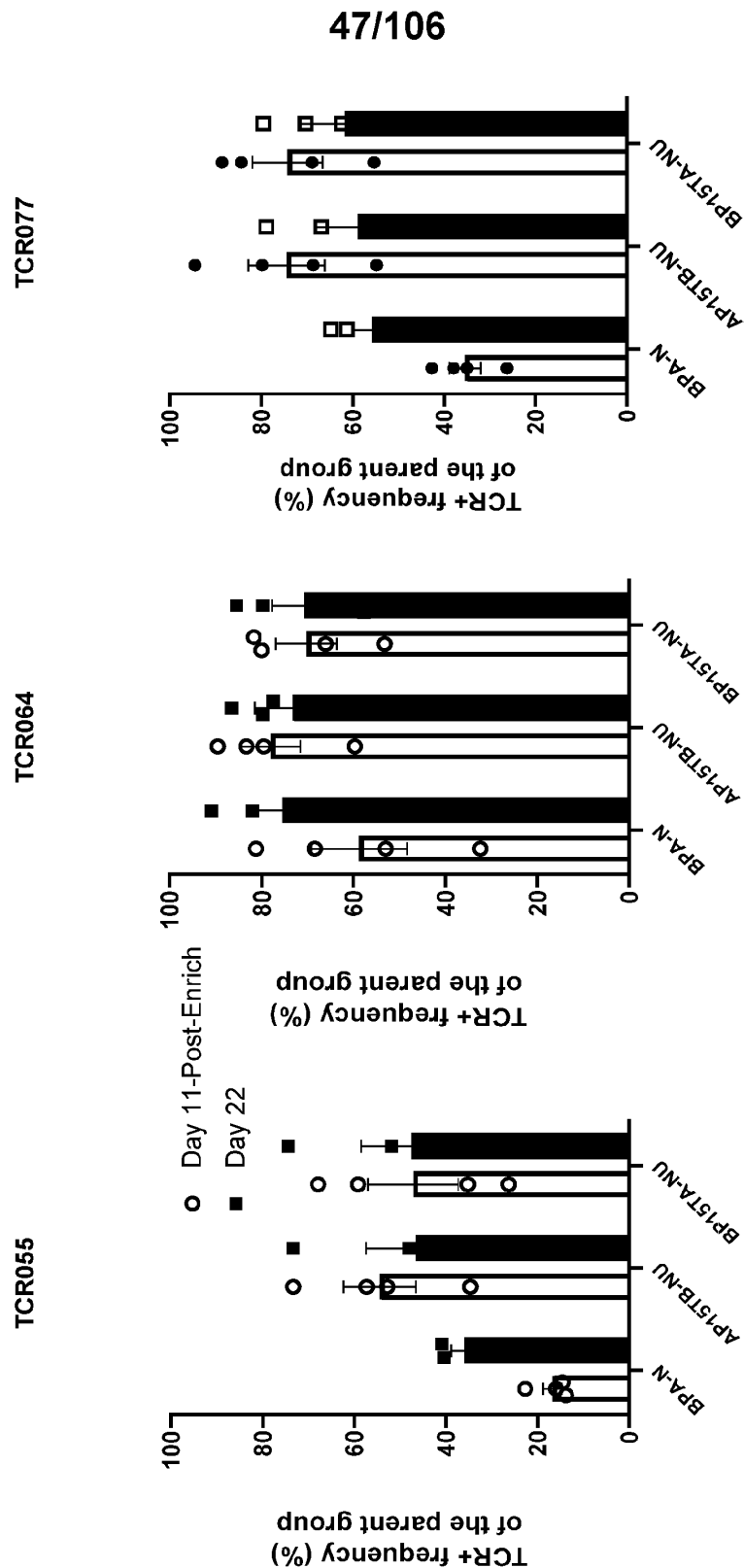


FIG. 26C

48/106

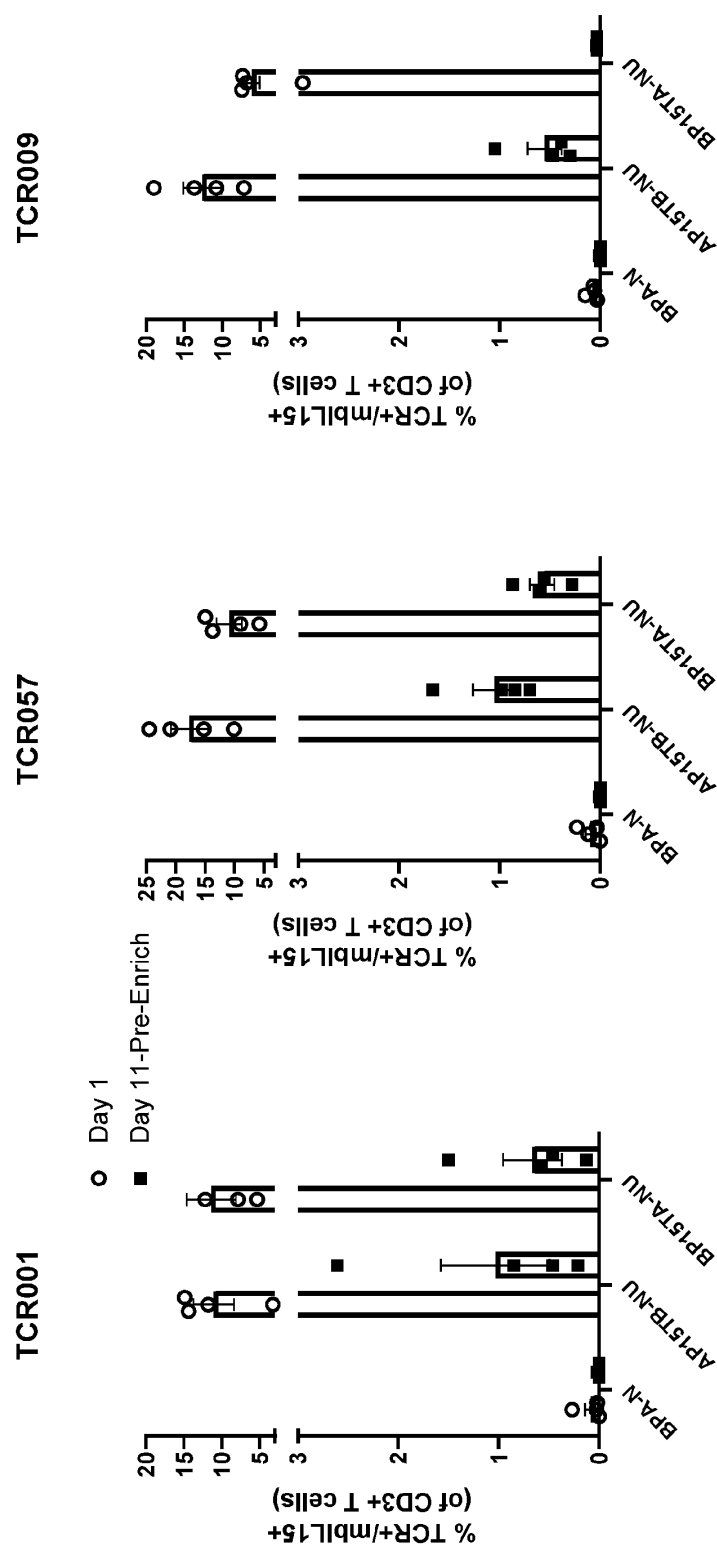


FIG. 27A

TCR+/mblL15+ Population Changes During First Expansion Phase

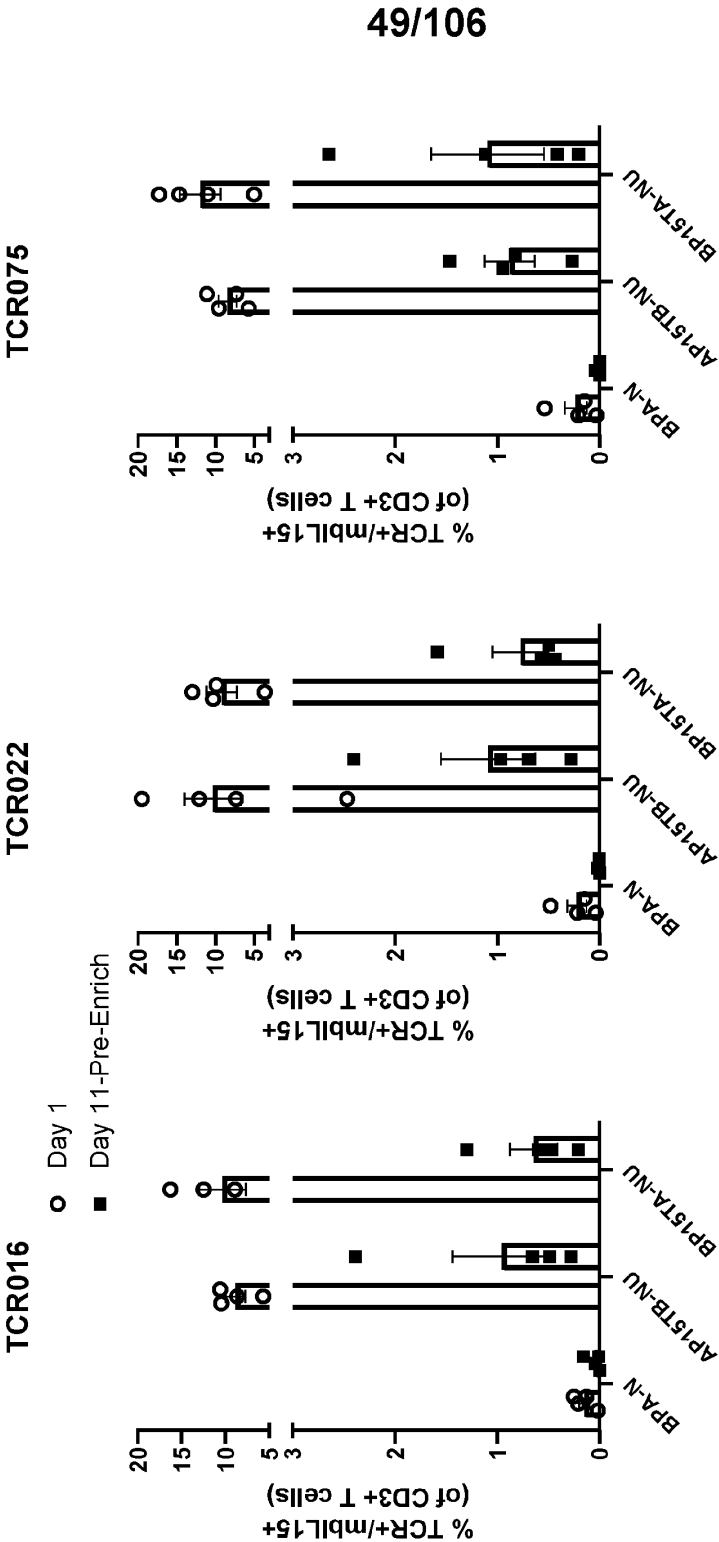


FIG. 27B

TCR+/mblL15+ Population Changes During First Expansion Phase

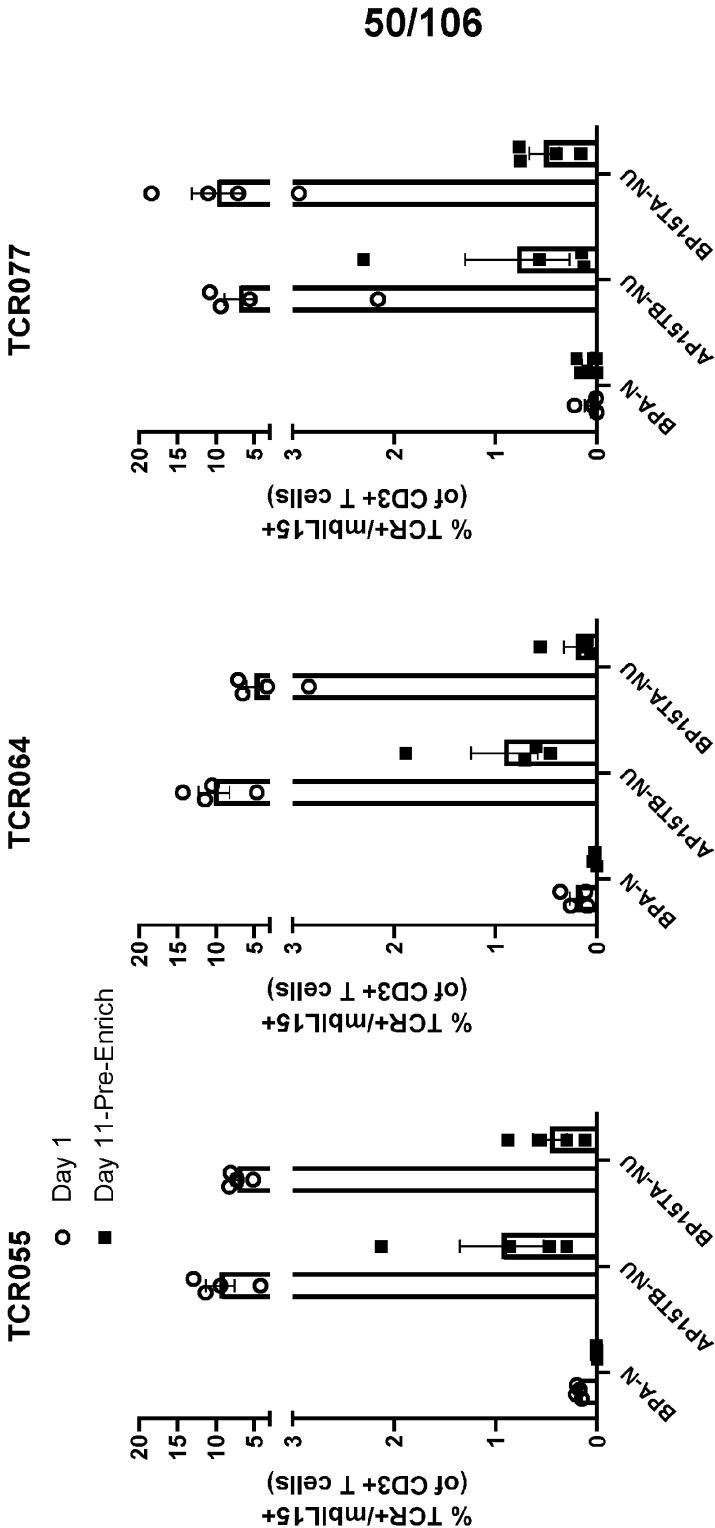


FIG. 27C

TCR+/mblL15+ Population Changes During Second Expansion Phase

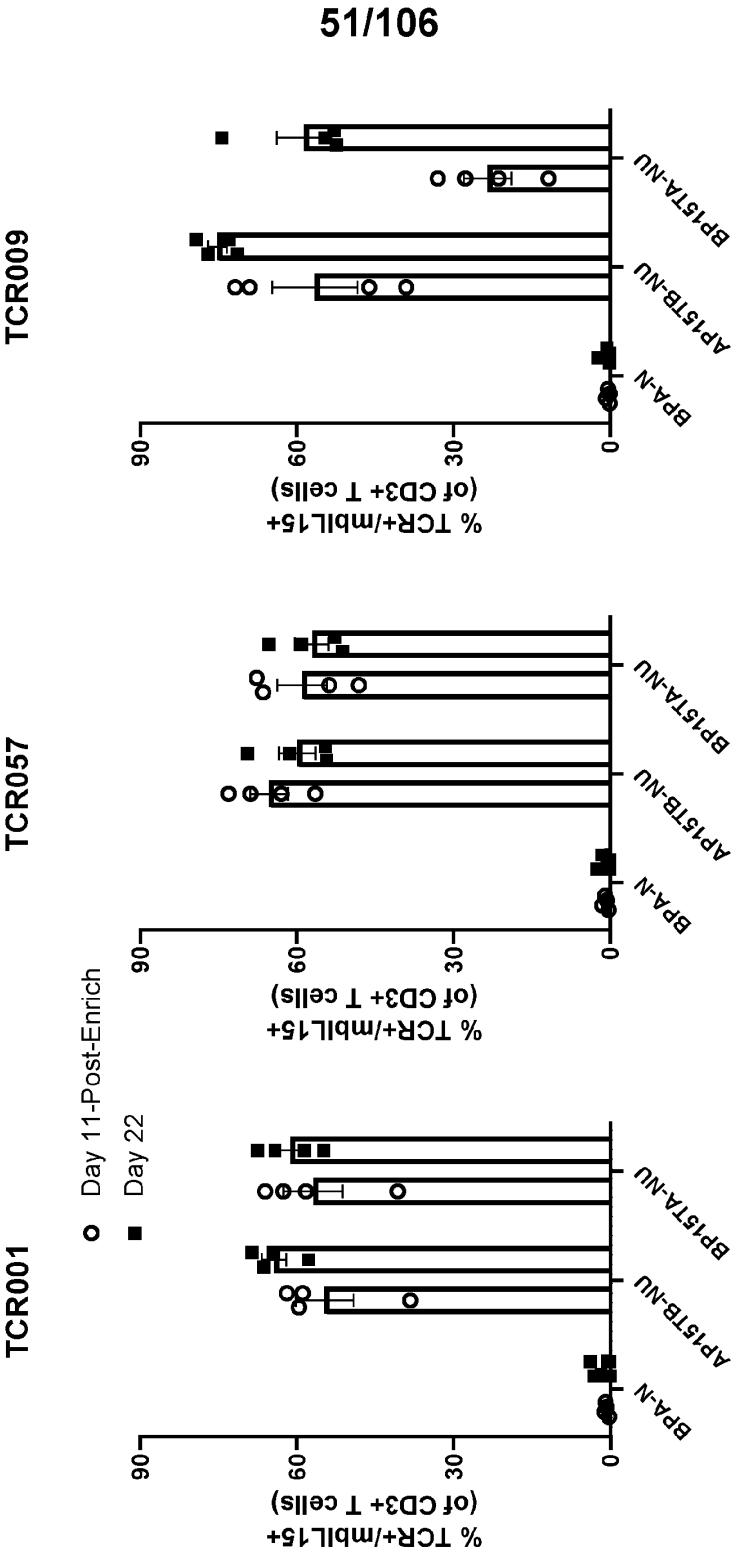


FIG. 28A

TCR+/mbIL15+ Population Changes During Second Expansion Phase

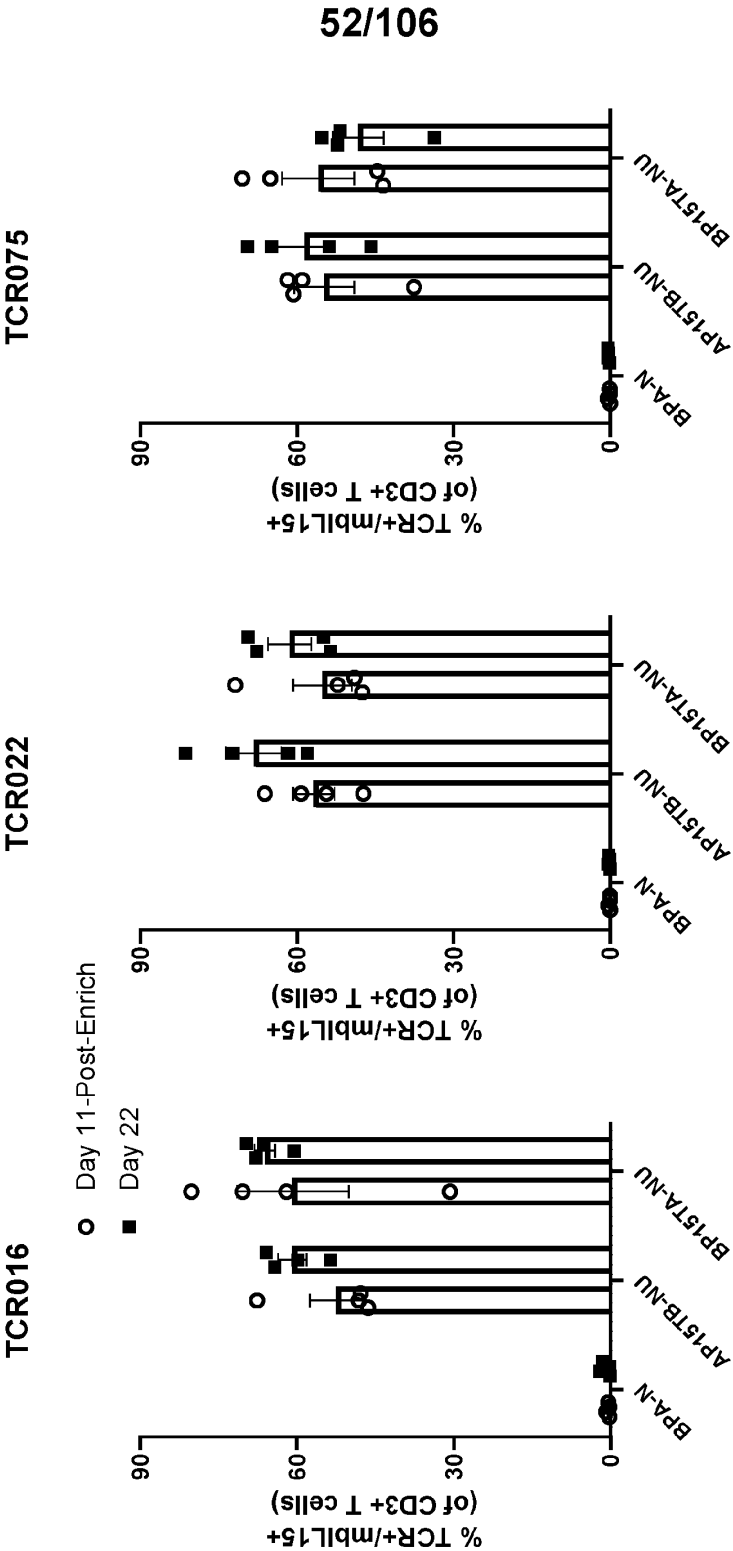


FIG. 28B

TCR+/mbIL15+ Population Changes During Second Expansion Phase

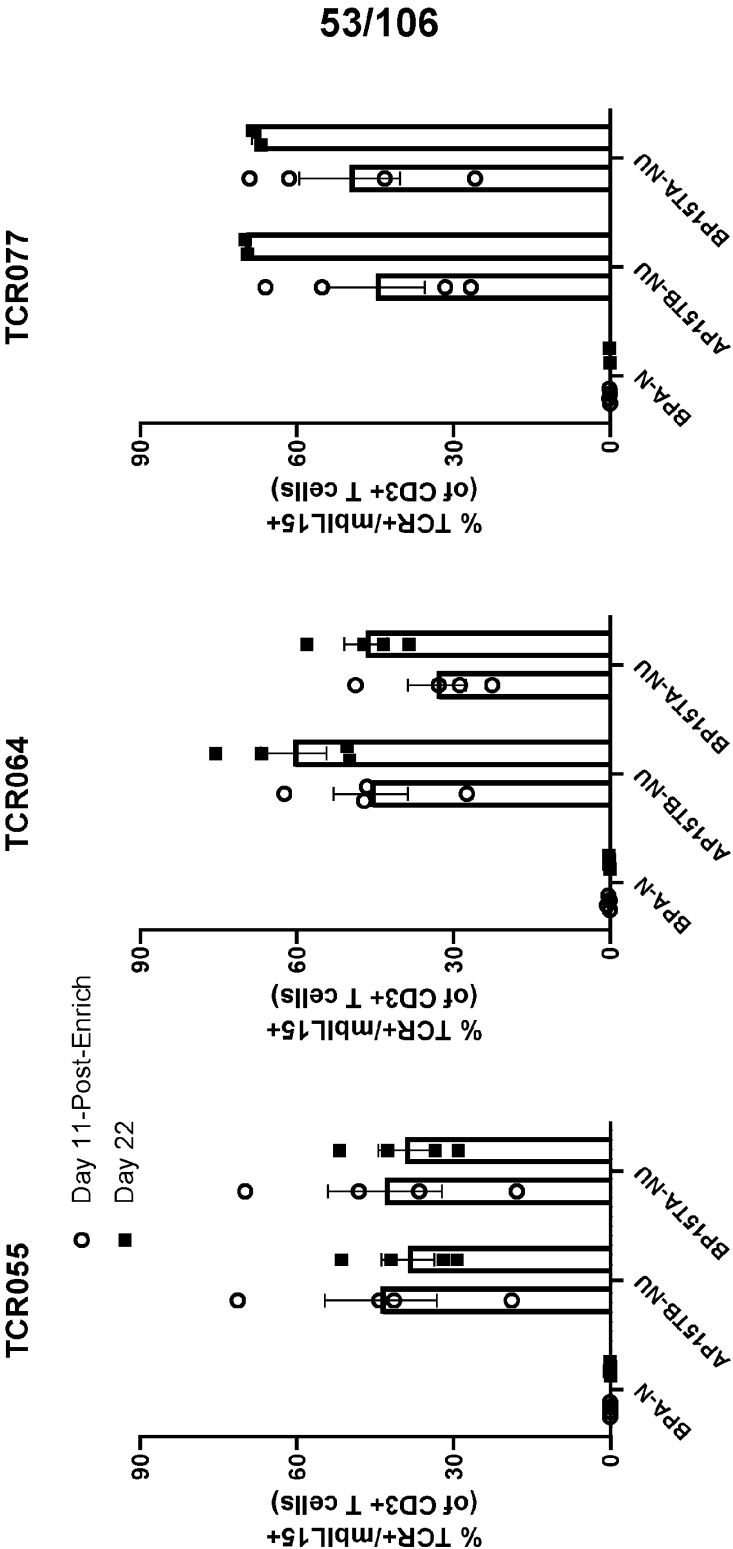


FIG. 28C

TCR001

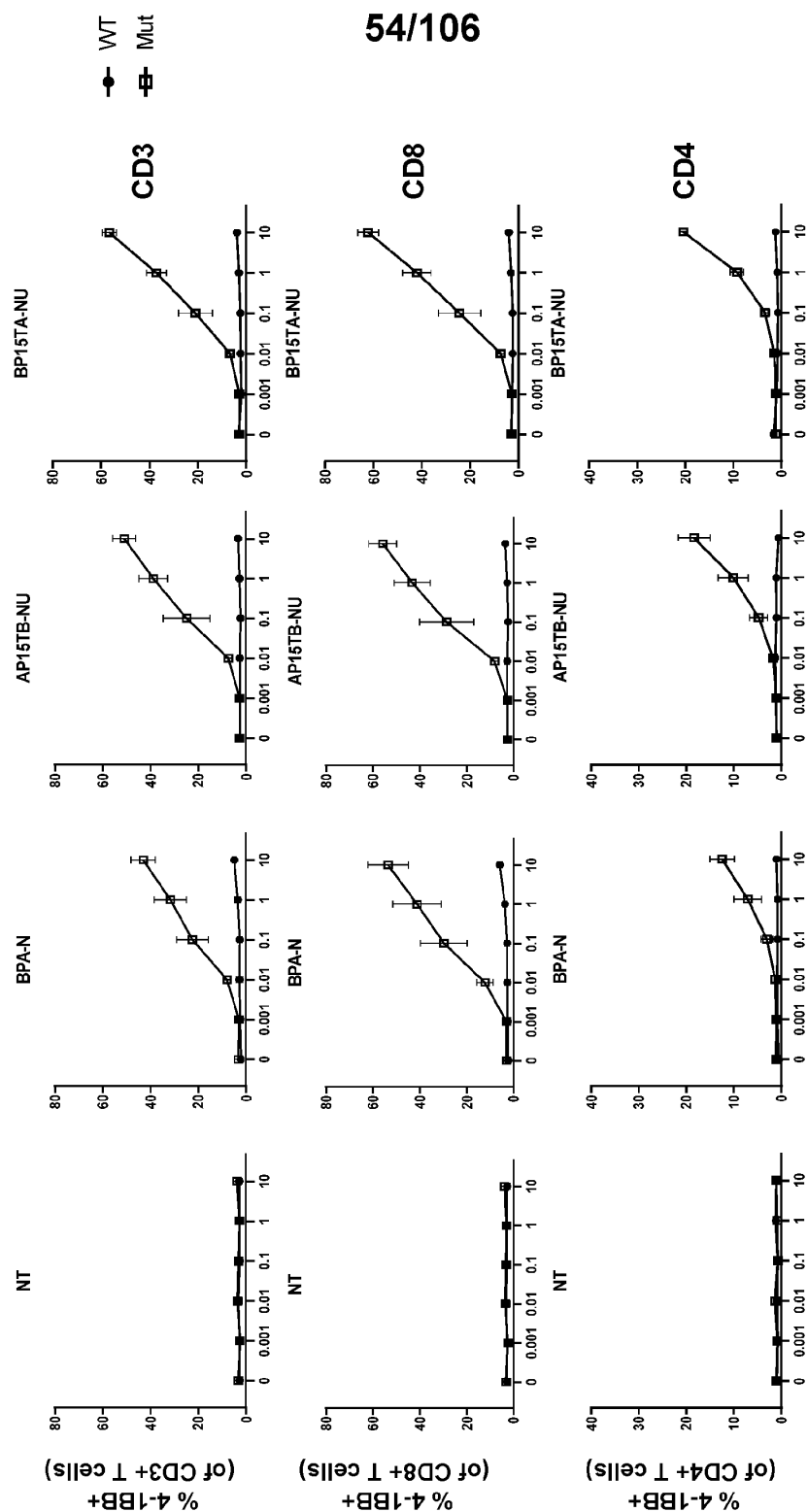
Peptide concentration ($\mu\text{g/mL}$)

FIG. 29A

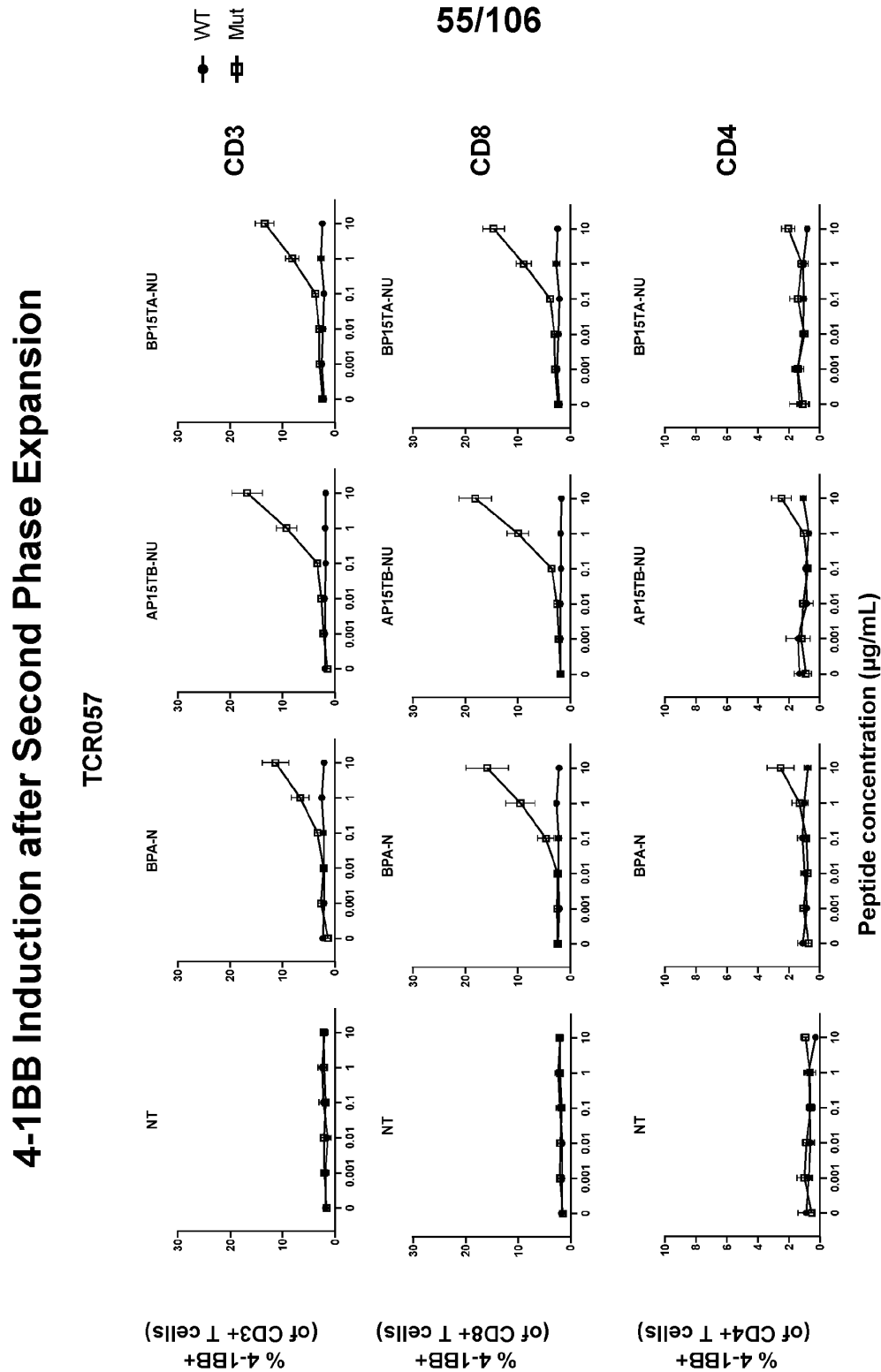


FIG. 29B

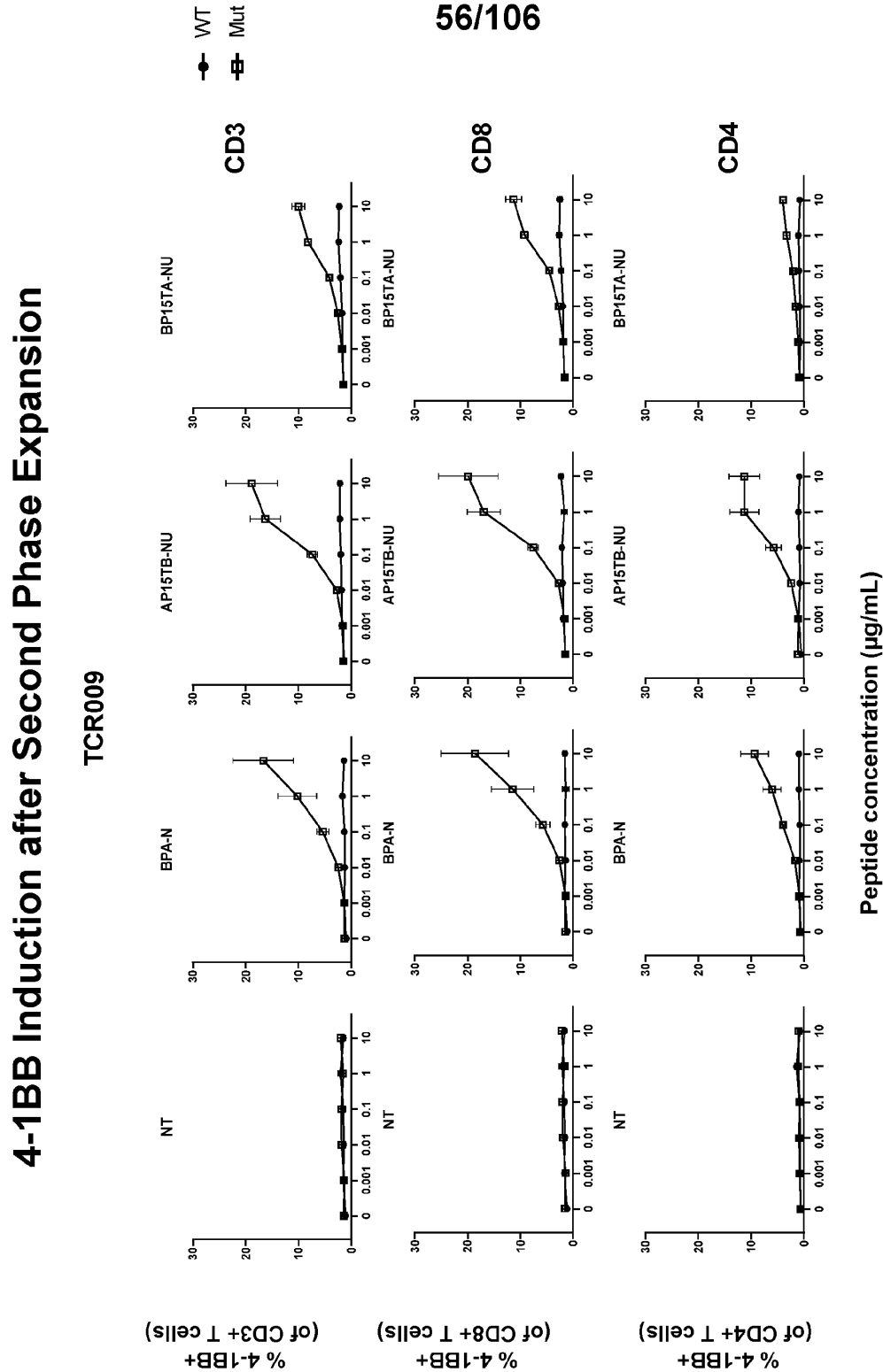


FIG. 29C

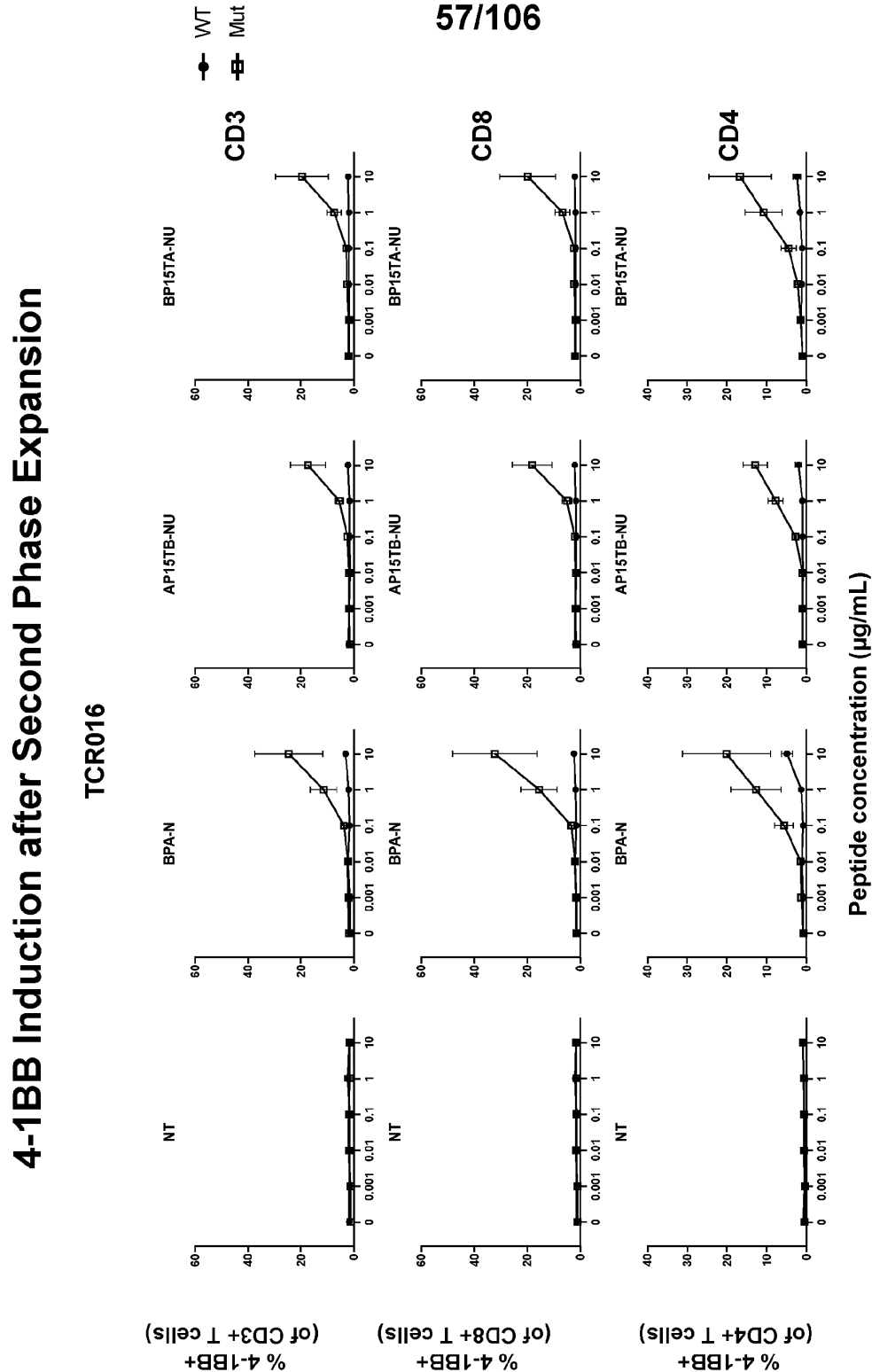


FIG. 29D

4-1BB Induction after Second Phase Expansion

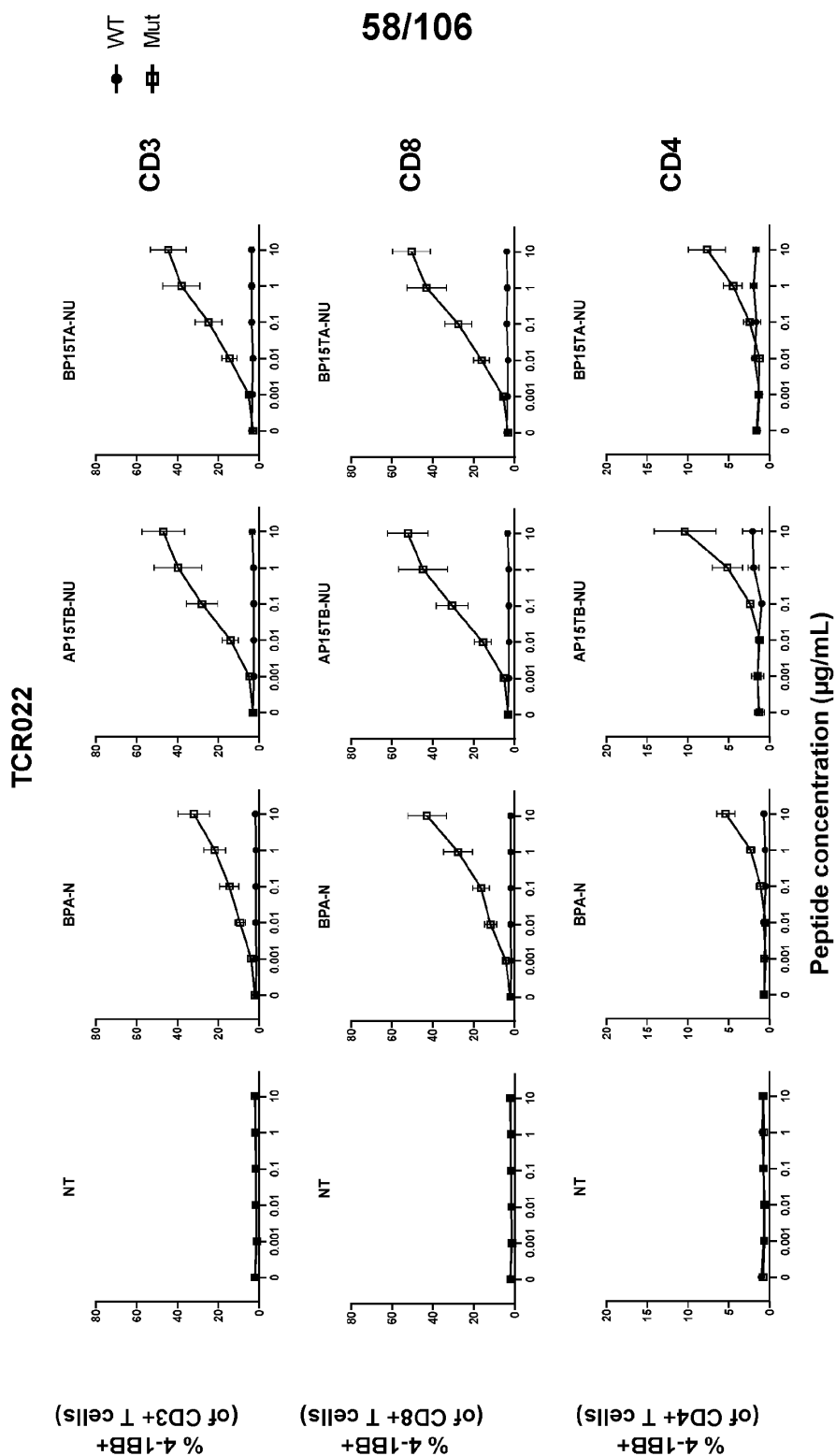


FIG. 29E

4-1BB Induction after Second Phase Expansion

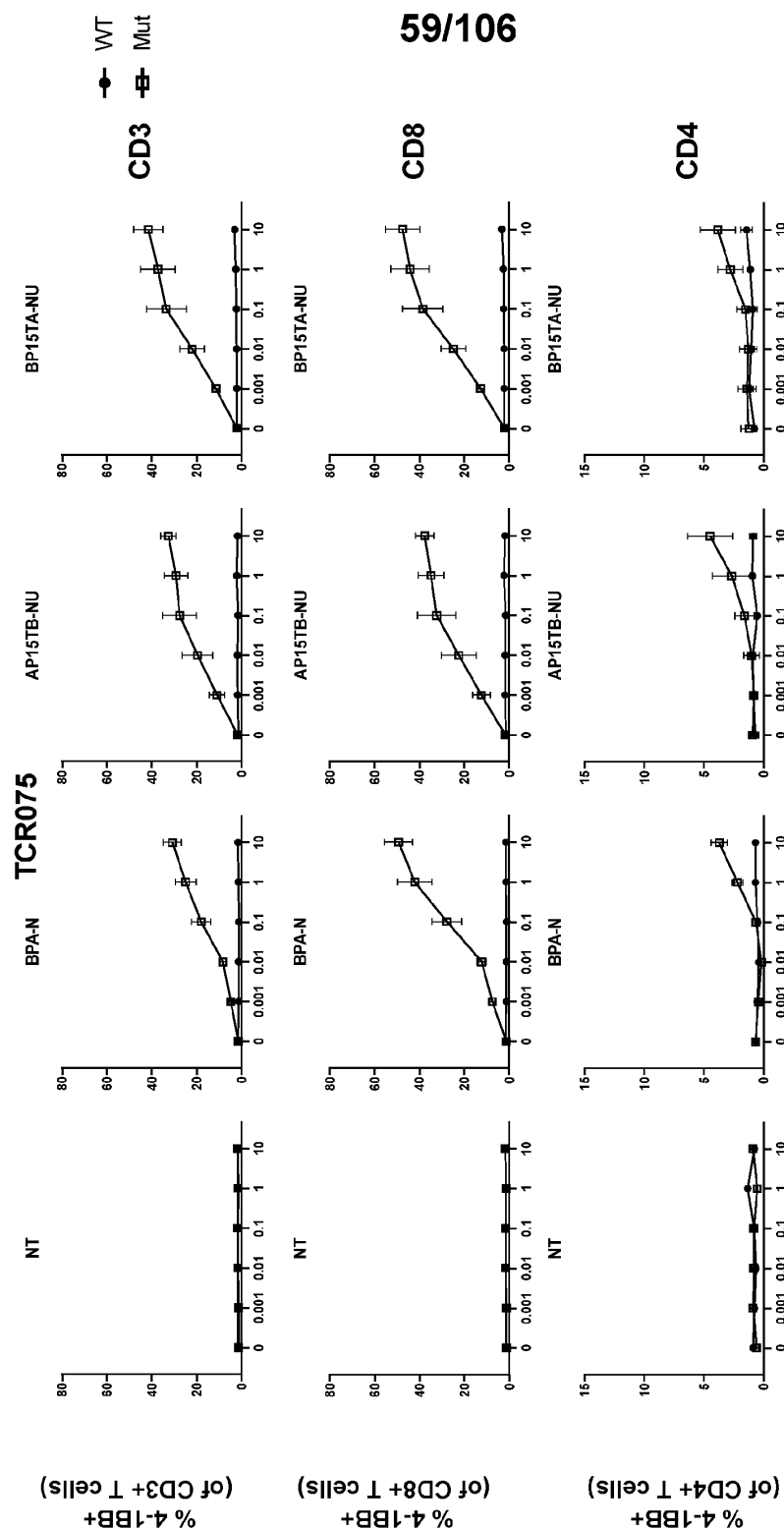
Peptide concentration ($\mu\text{g/mL}$)

FIG. 29F

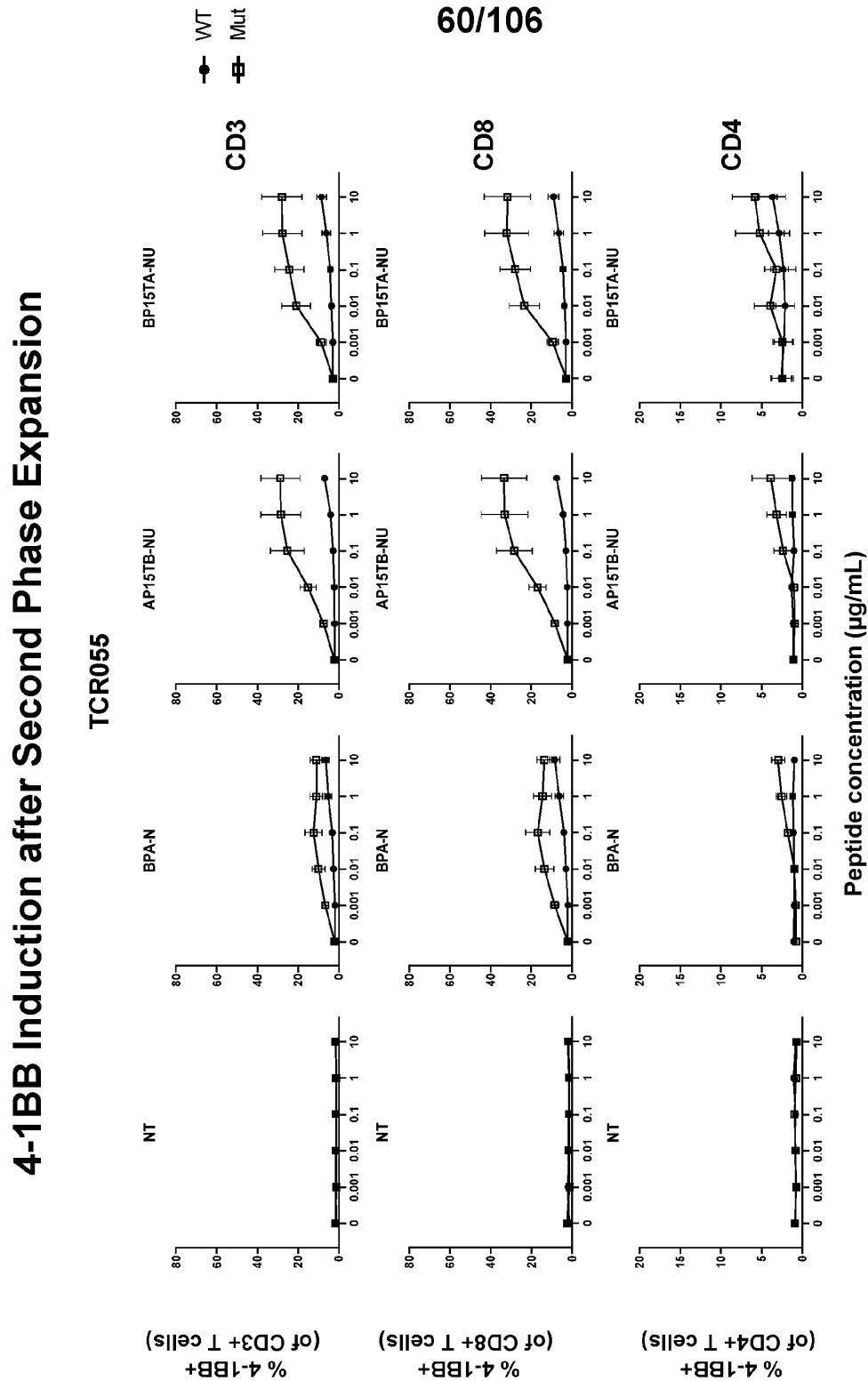


FIG. 29G

4-1BB Induction after Second Phase Expansion

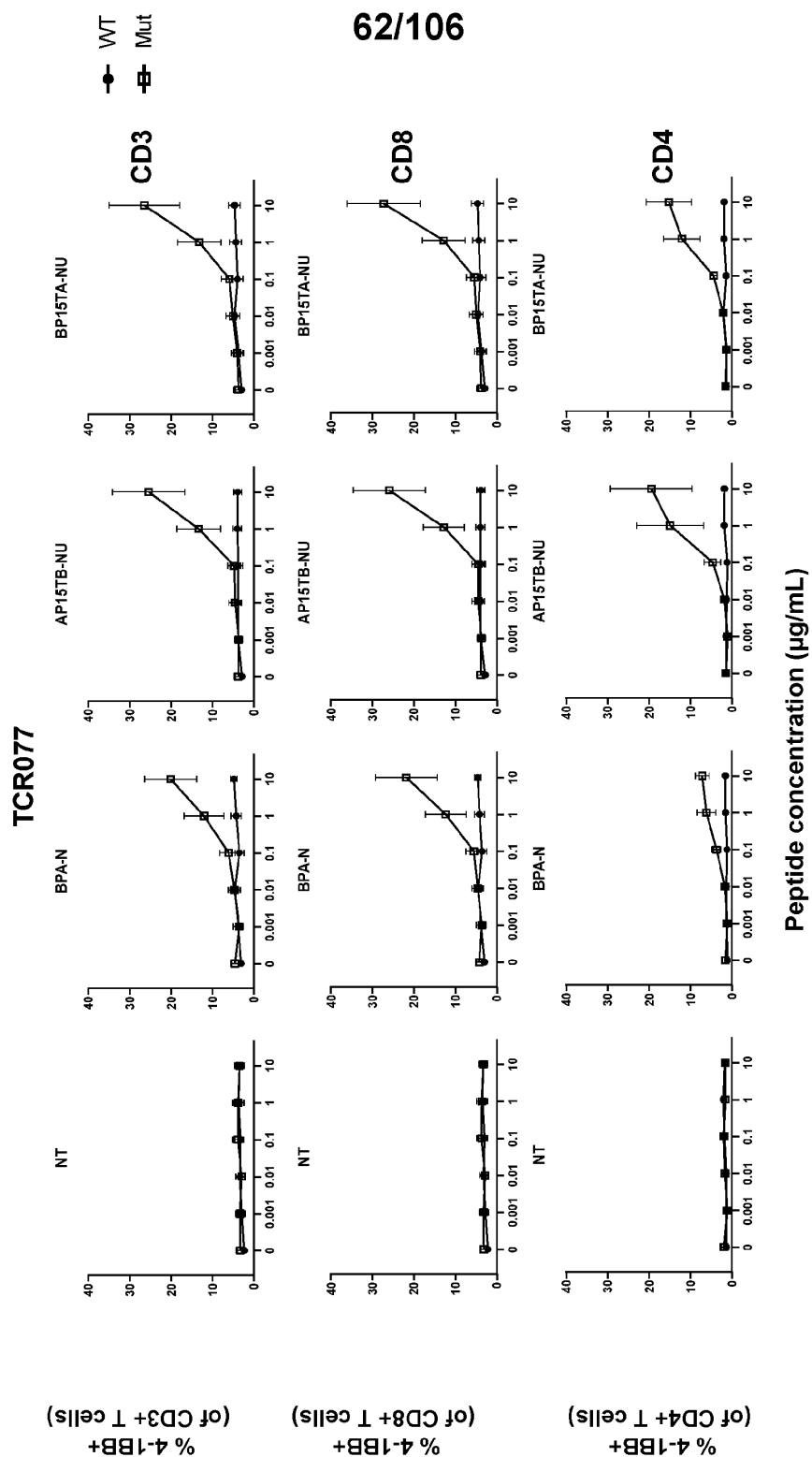


FIG. 29I

IFN- γ Secretion after Second Phase Expansion

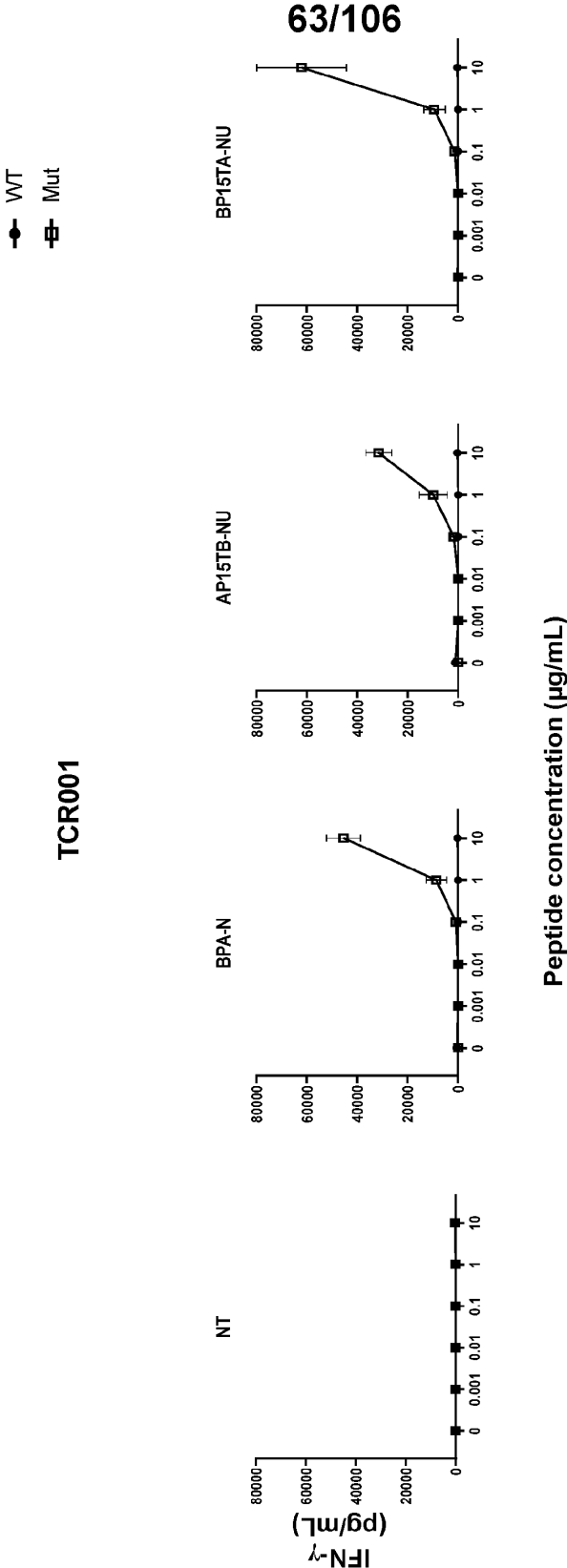


FIG. 30A

IFN- γ Secretion after Second Phase Expansion

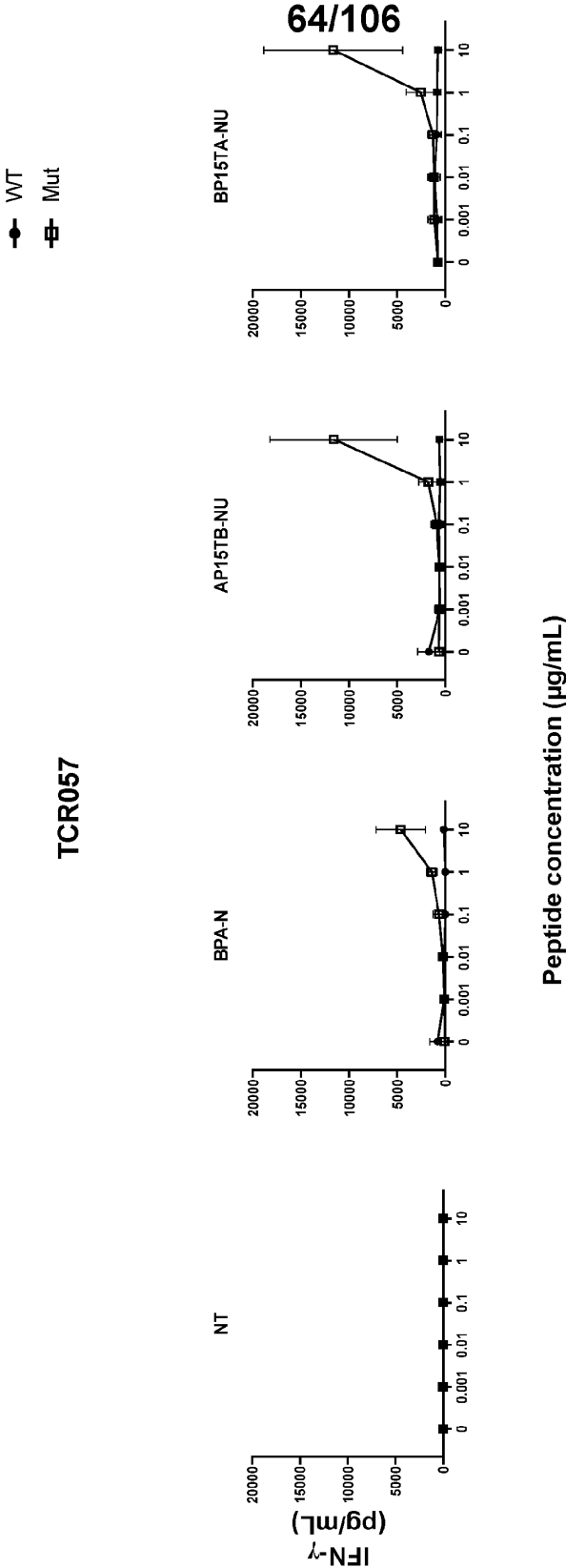


FIG. 30B

IFN- γ Secretion after Second Phase Expansion

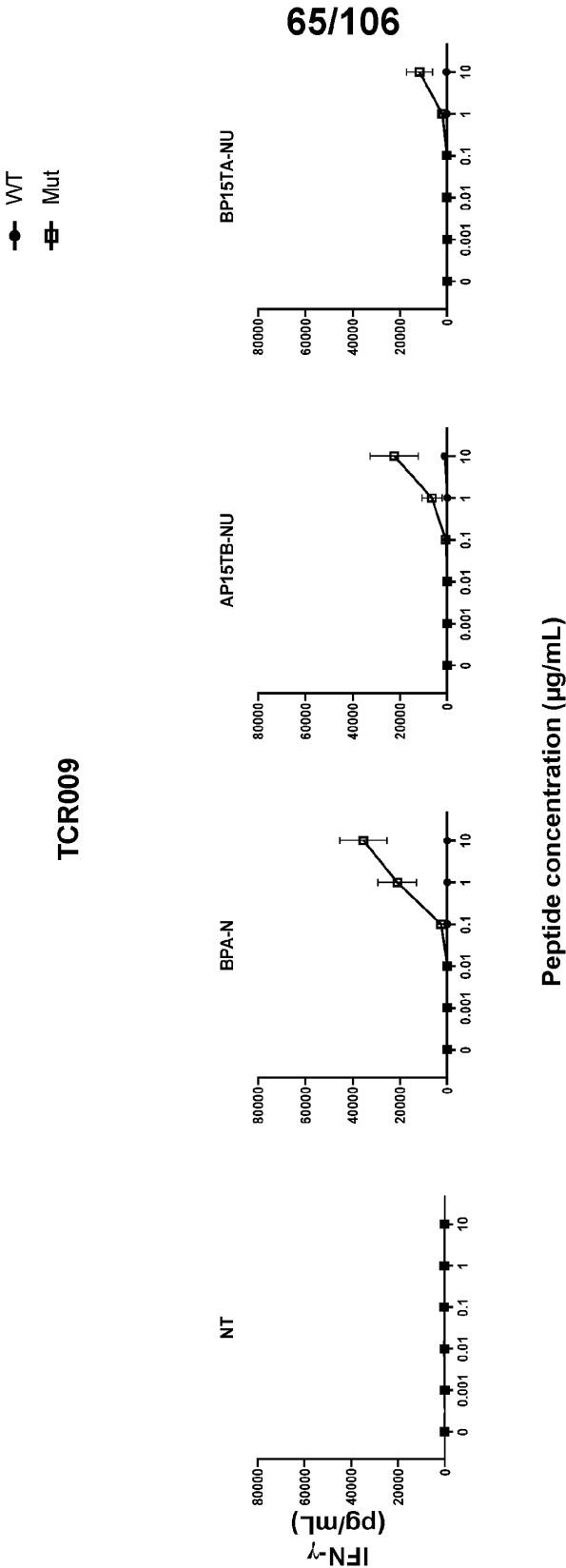


FIG. 30C

IFN-γ Secretion after Second Phase Expansion

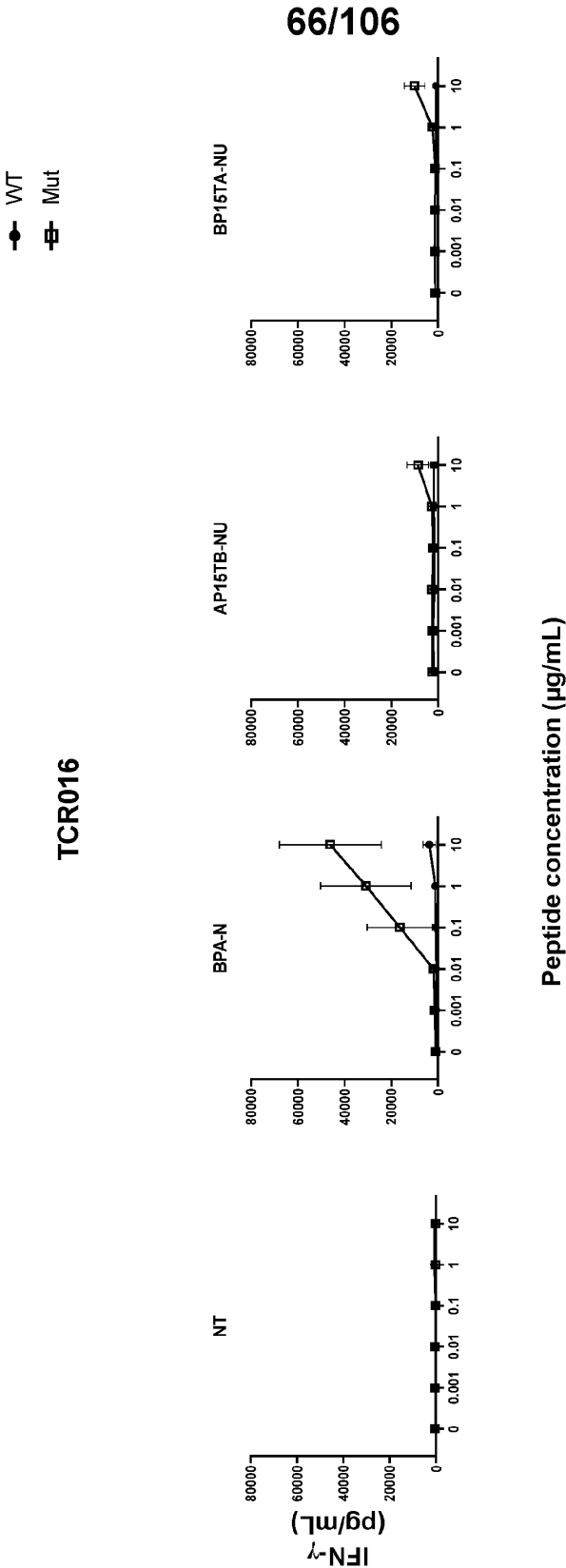


FIG. 30D

IFN-γ Secretion after Second Phase Expansion

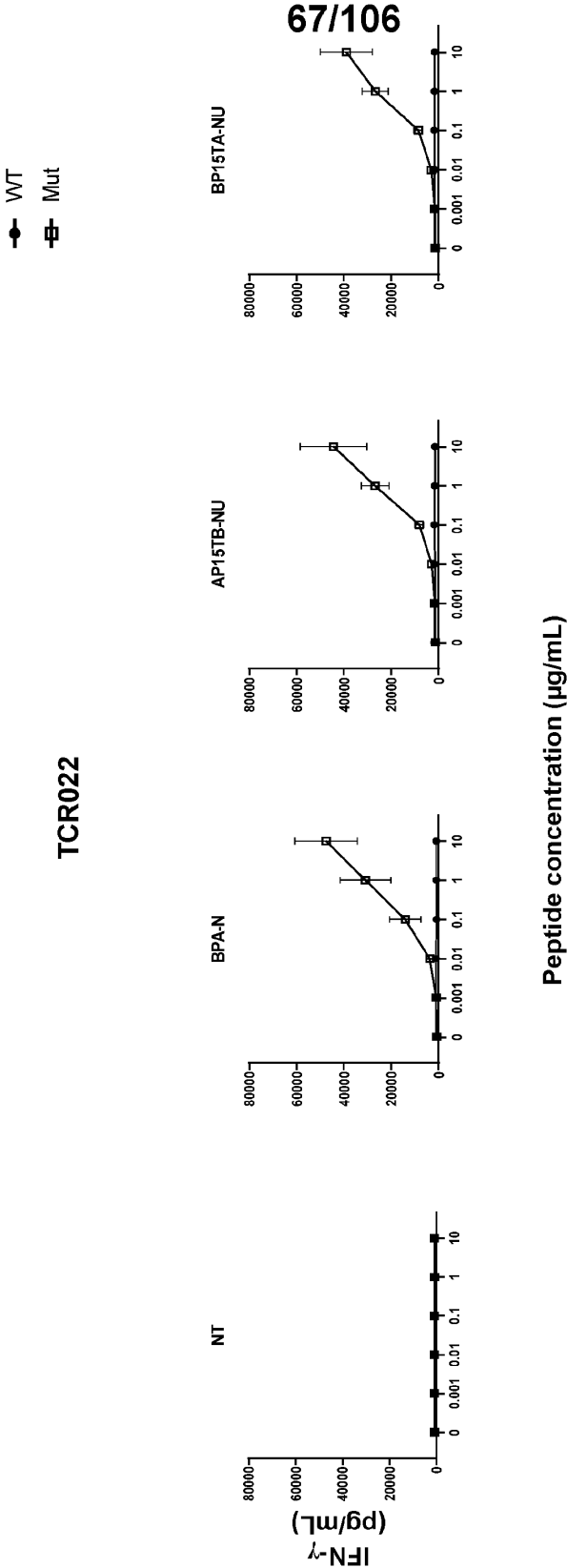


FIG. 30E

IFN- γ Secretion after Second Phase Expansion

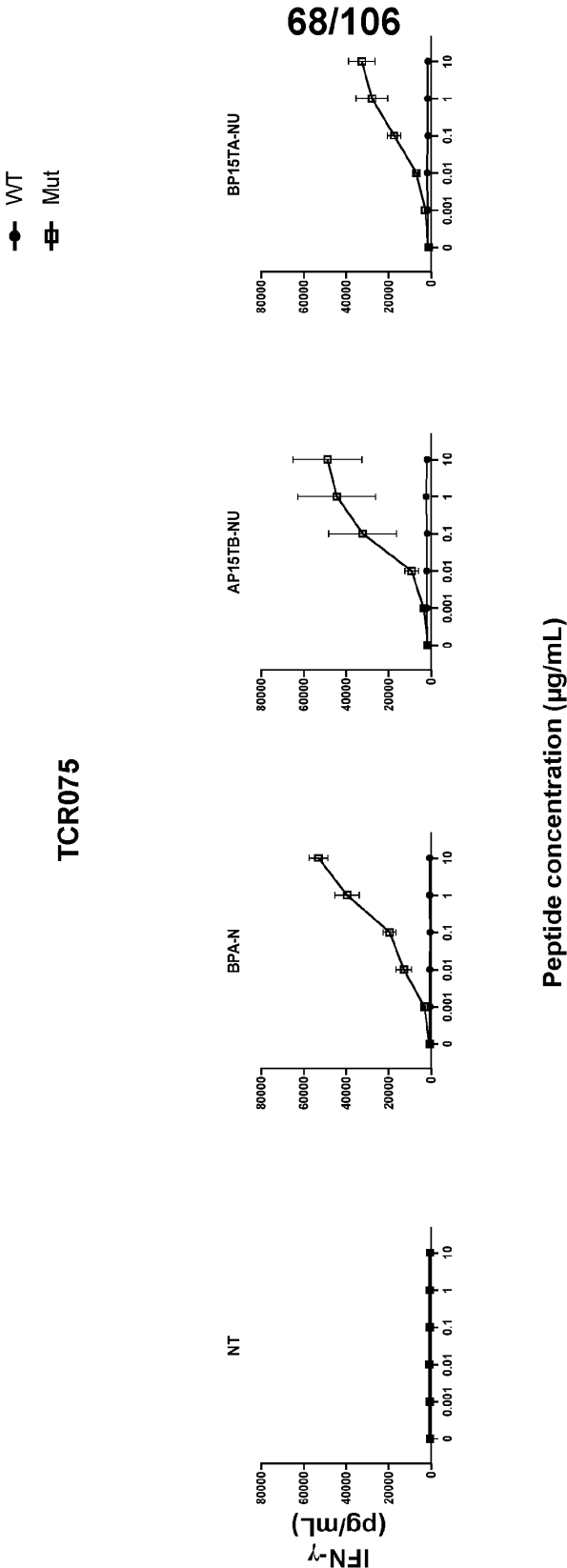


FIG. 30F

IFN- γ Secretion after Second Phase Expansion

WT
Mut

TCR055

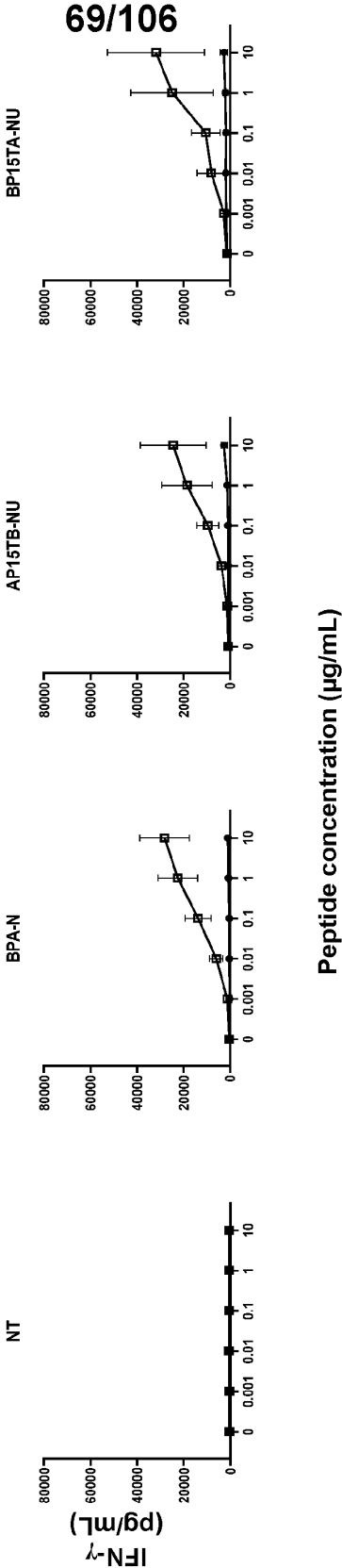


FIG. 30G

IFN- γ Secretion after Second Phase Expansion

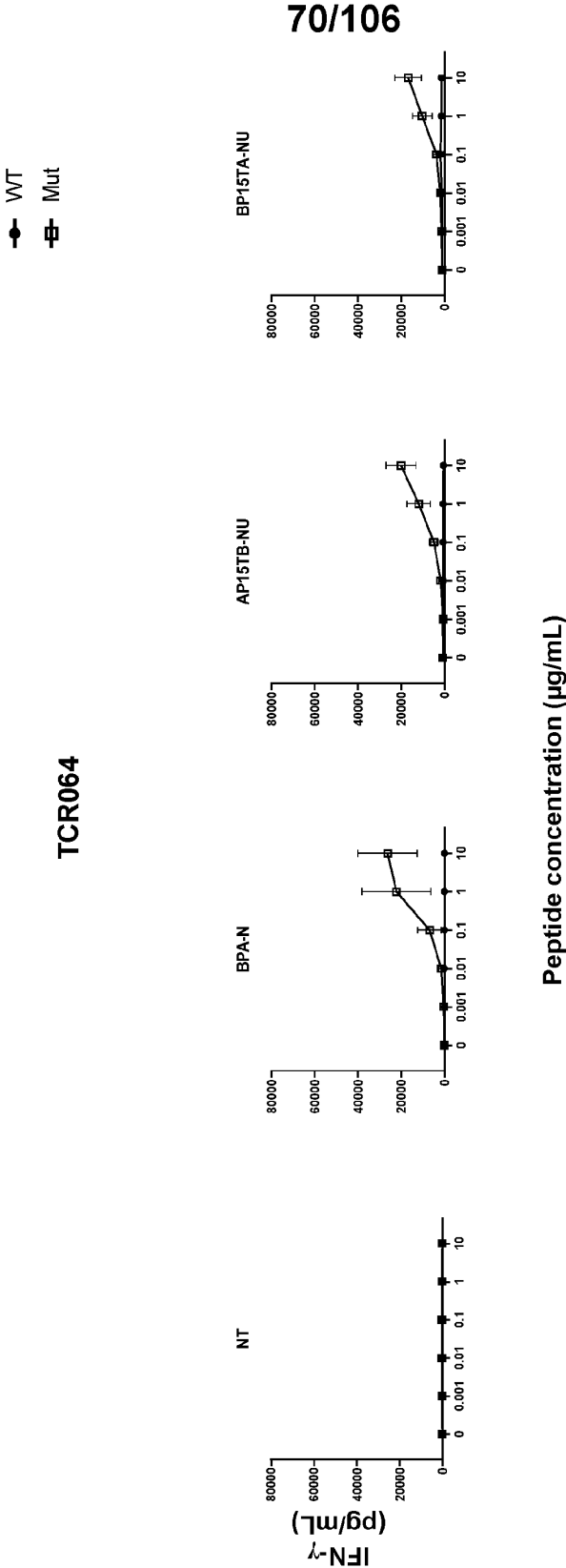


FIG. 30H

IFN-γ Secretion after Second Phase Expansion

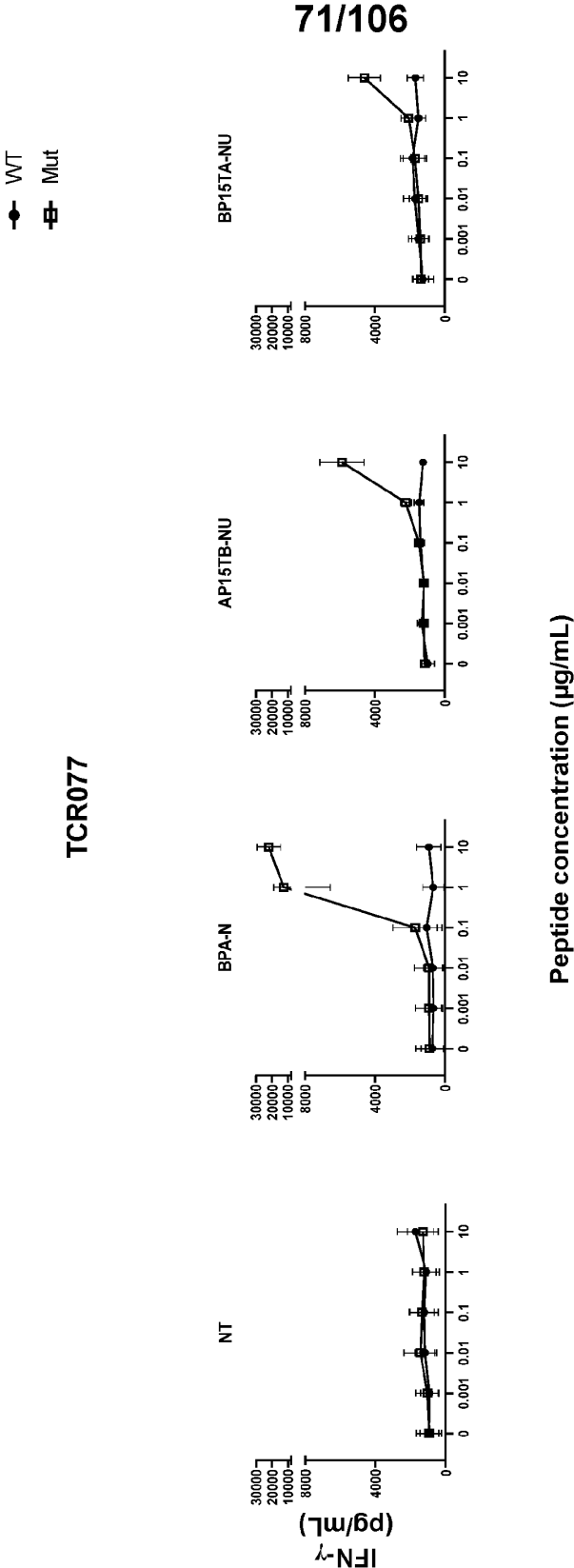


FIG. 30I

Cytolytic Activity of TCR001 TCR-T cells

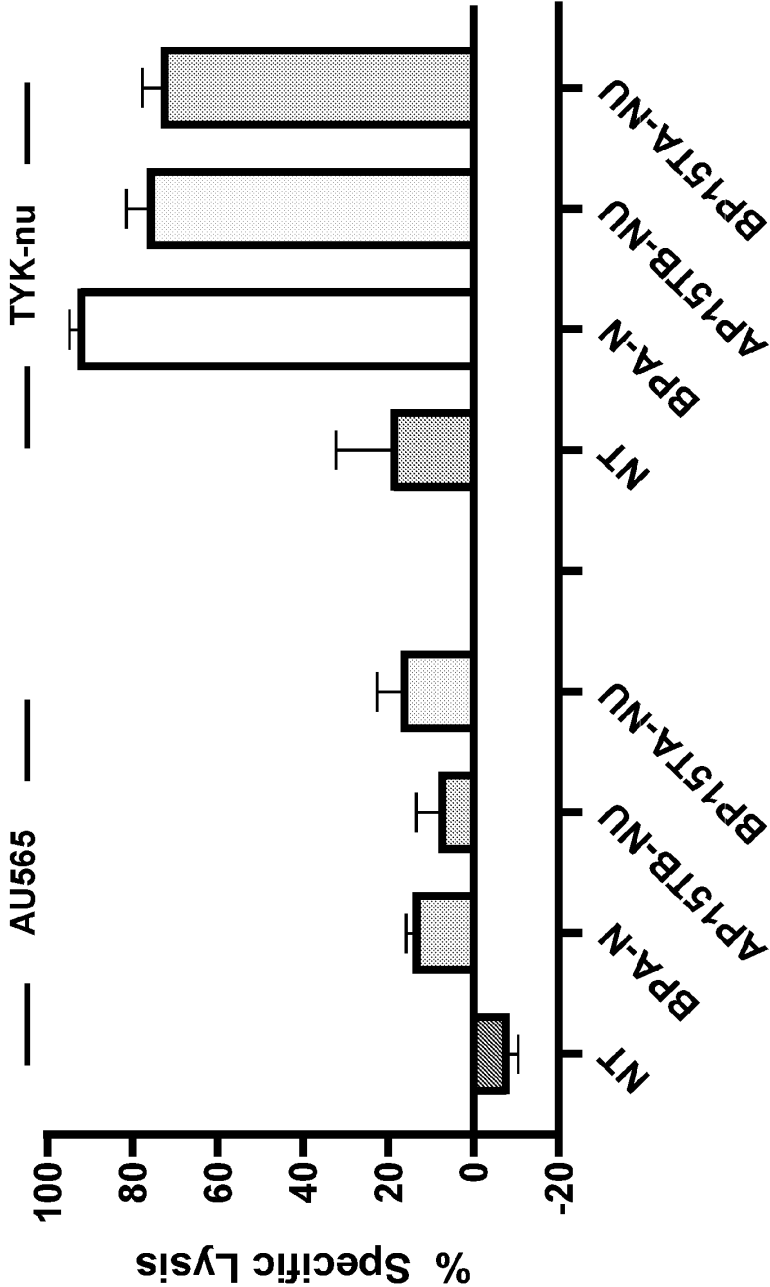


FIG. 31

Cytolytic Activity of TCR022 TCR-T cells

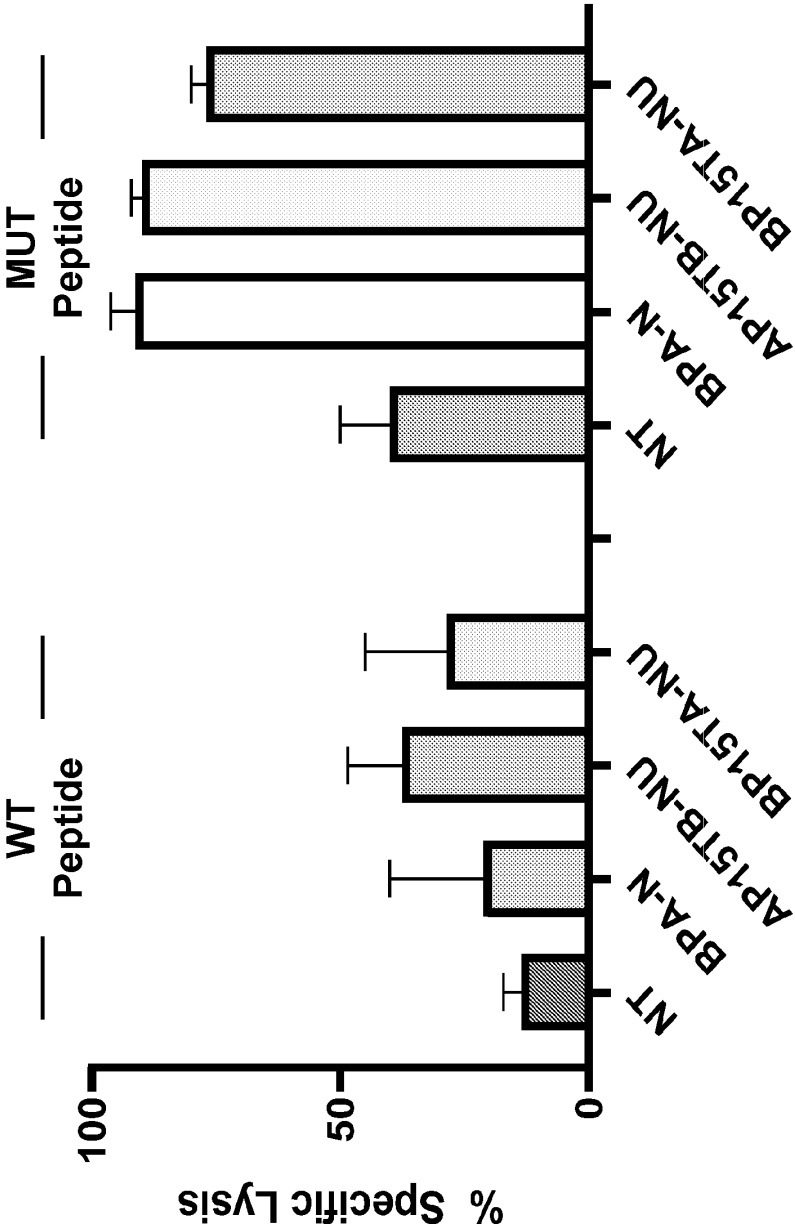


FIG. 32A

Cytolytic Activity of TCR075 TCR-T cells

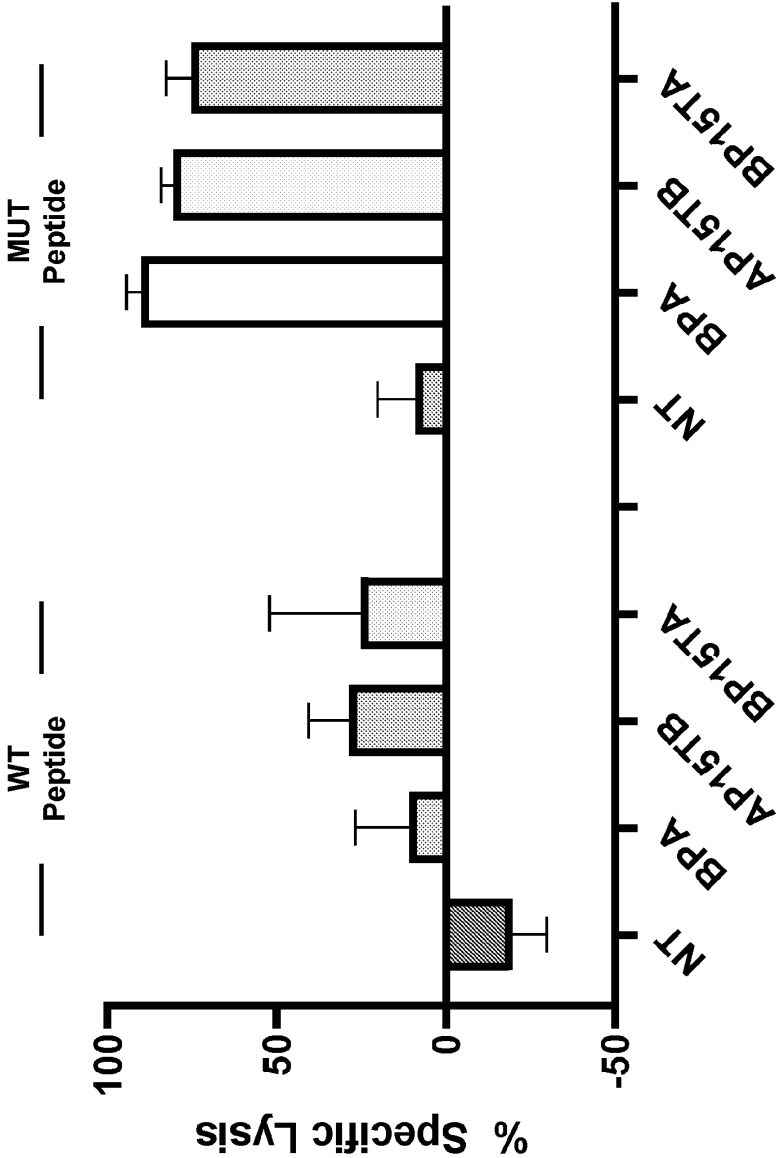


FIG. 32B

TCR+ population after LTWD culture

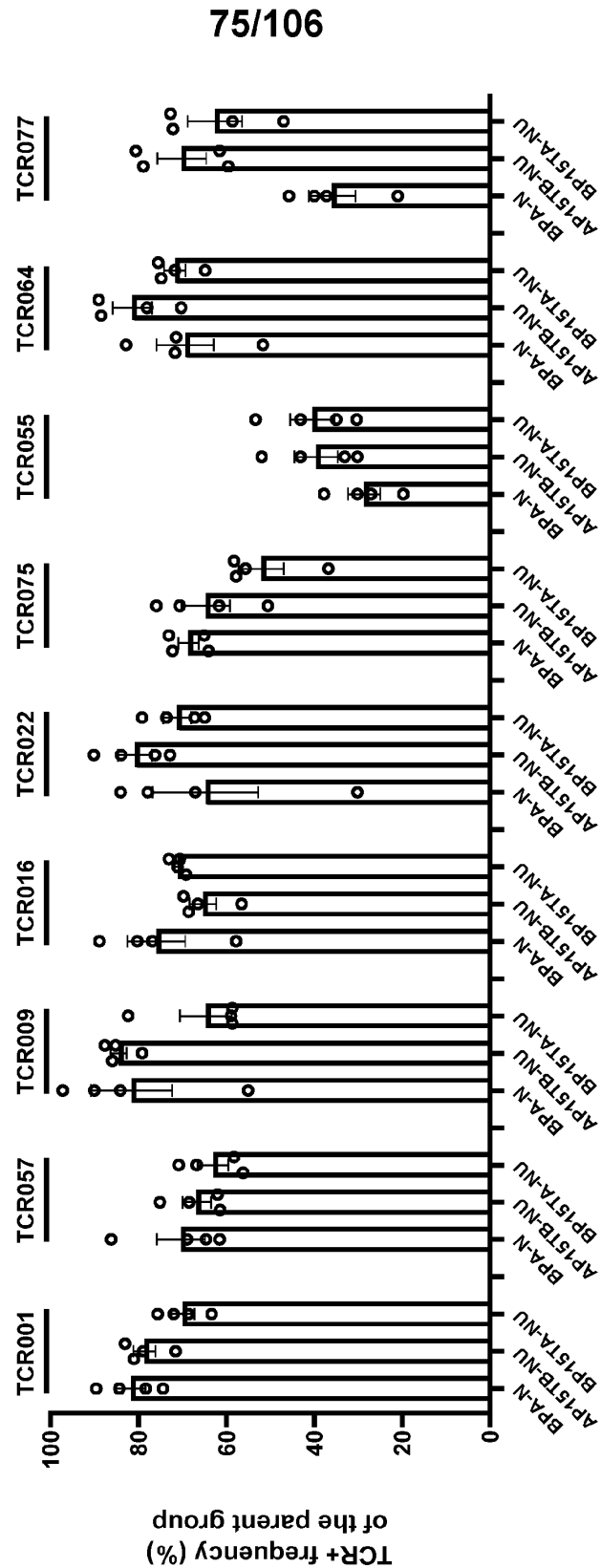


FIG. 33

Cell Survival after LTWD culture

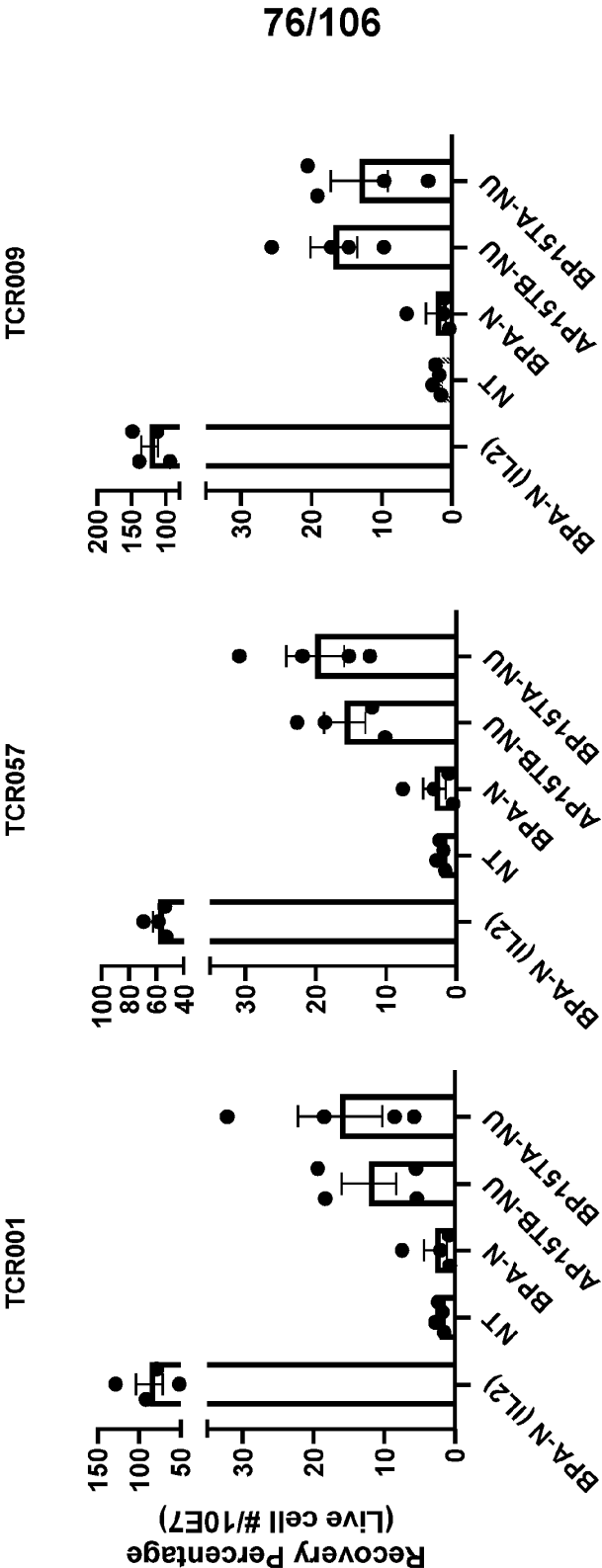


FIG. 34A

Cell Survival after LTWD culture

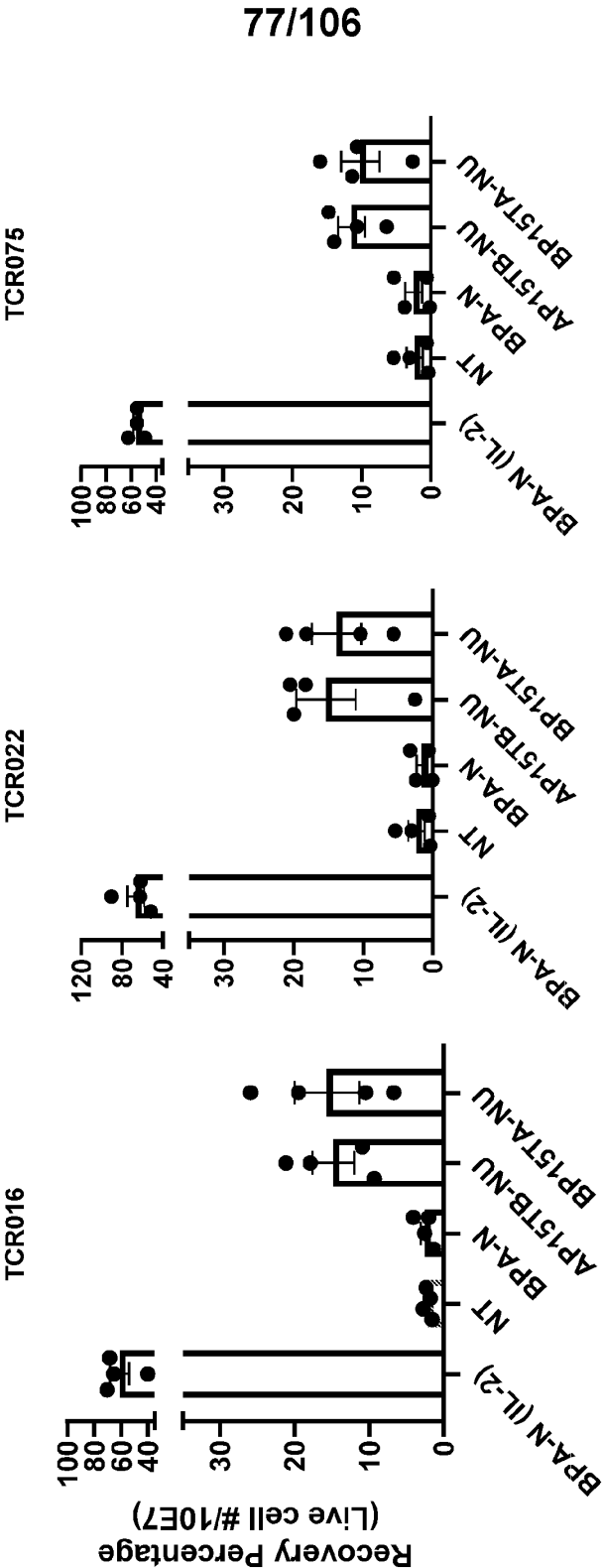


FIG. 34B

Cell Survival after LTWD culture

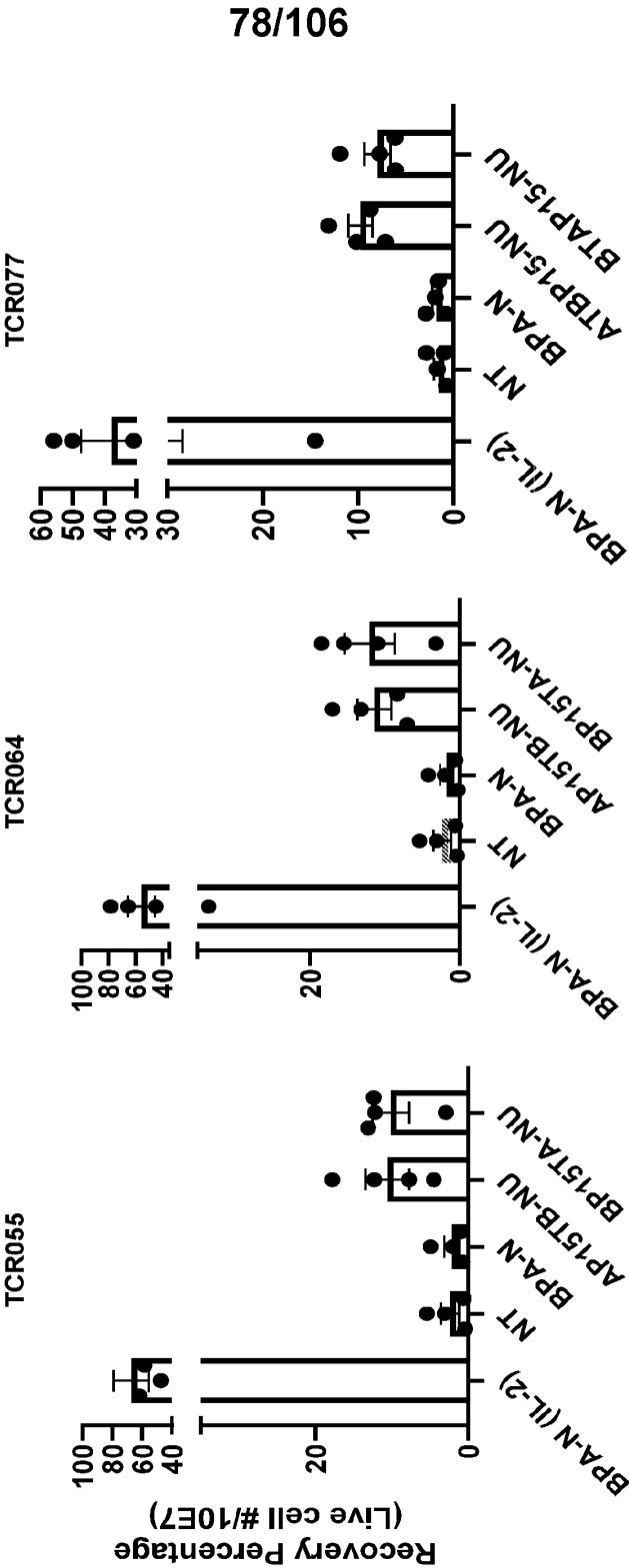


FIG. 34C

4-1BB Induction after LTWD culture

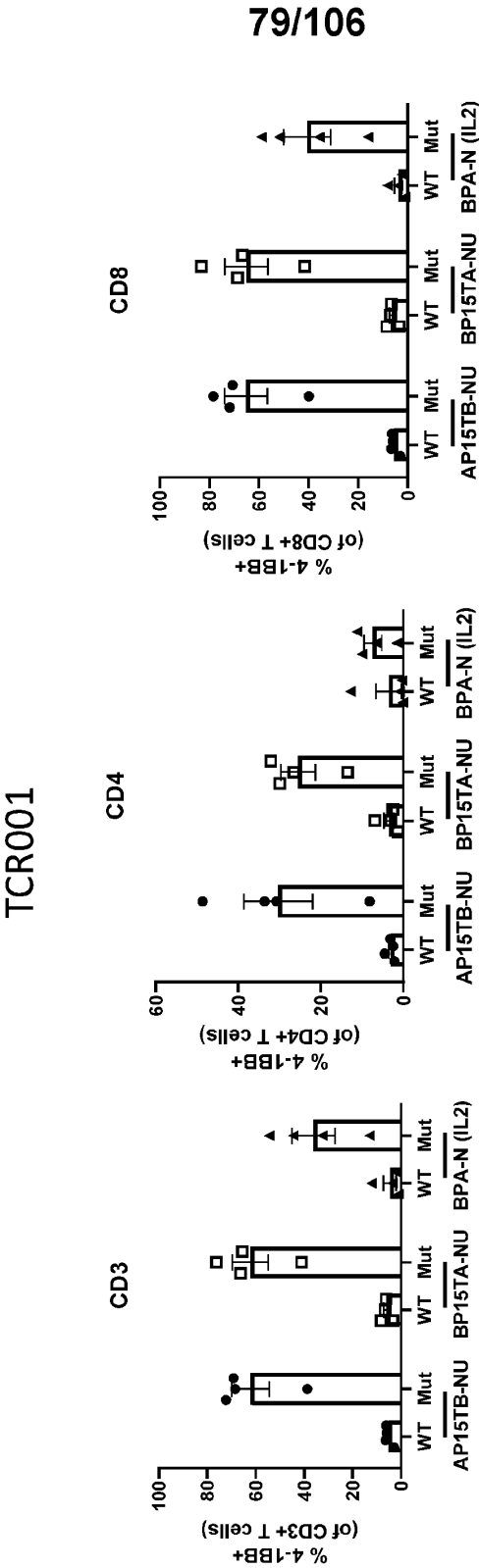


FIG. 35A

4-1BB Induction after LTWD culture

TCR057

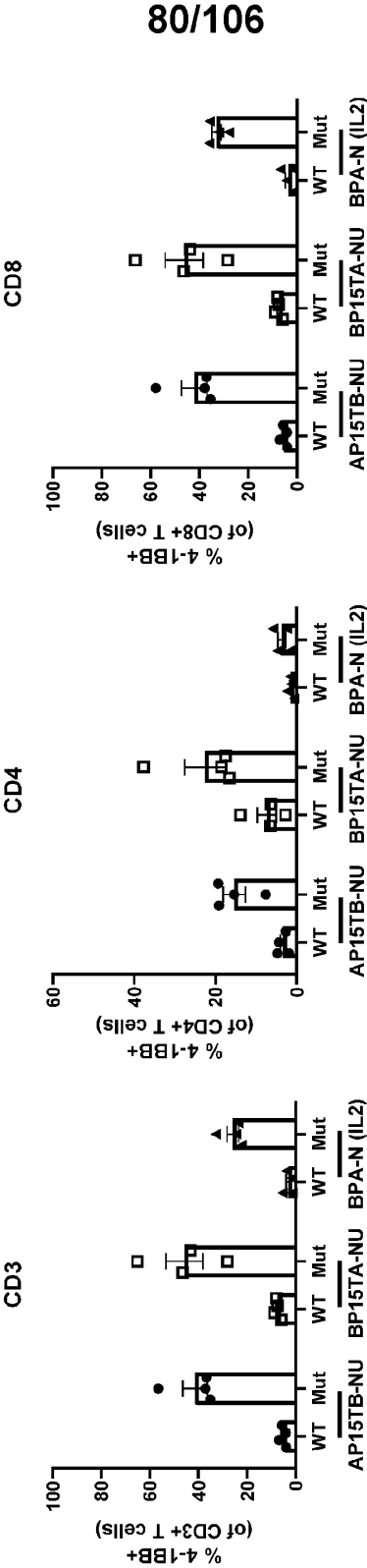


FIG. 35B

4-1BB Induction after LTWD culture

TCR009

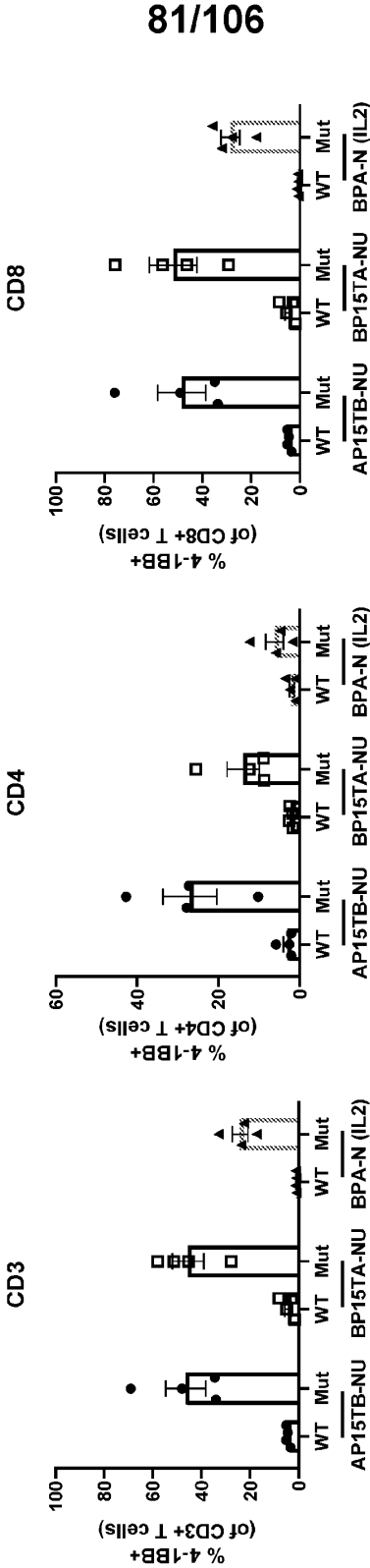


FIG. 35C

4-1BB Induction after LTWD culture

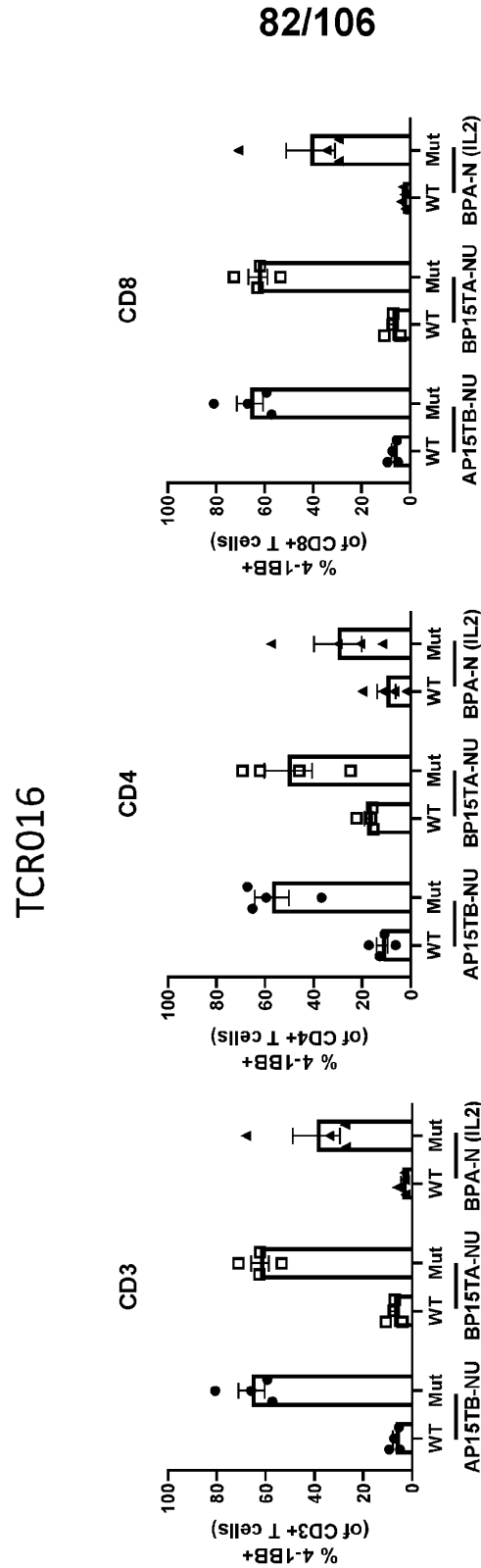


FIG. 35D

4-1BB Induction after LTWD culture

TCR022

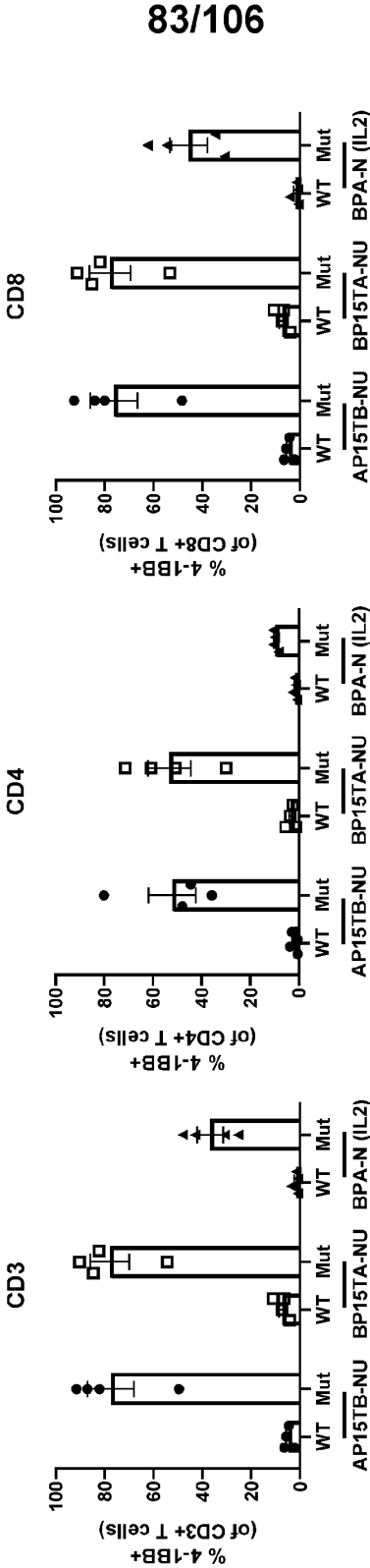


FIG. 35E

4-1BB Induction after LTWD culture

TCR075

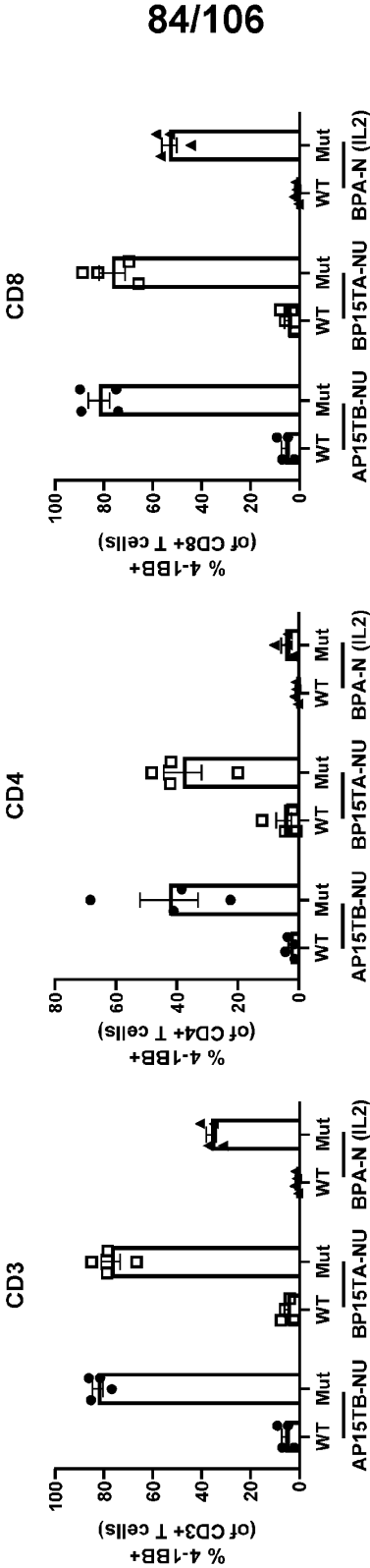


FIG. 35F

4-1BB Induction after LTWD culture

TCR055

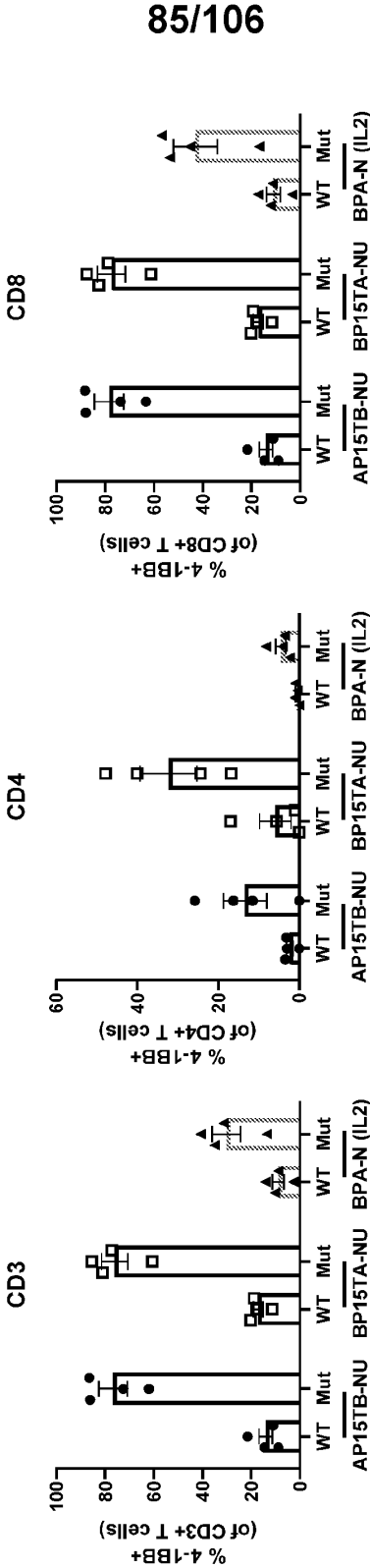


FIG. 35G

4-1BB Induction after LTWD culture

TCR064

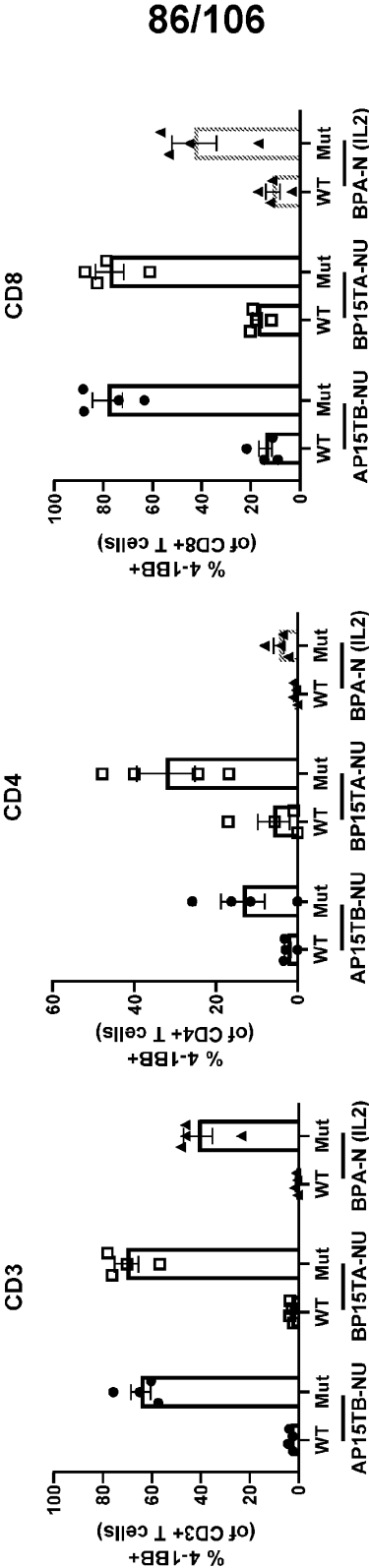


FIG. 35H

4-1BB Induction after LTWD culture

TCR077

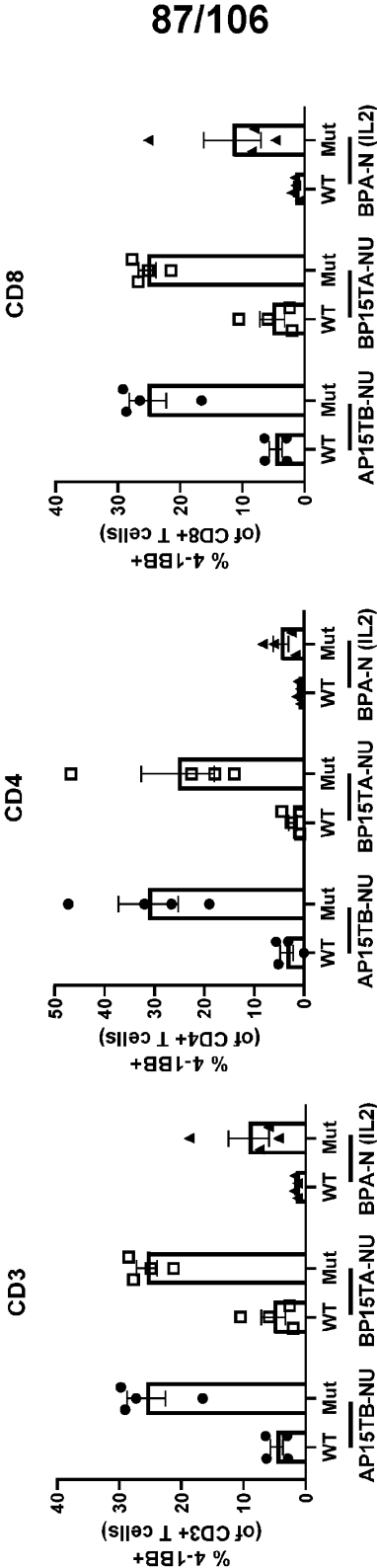


FIG. 35I

IFN- γ after LTWD culture

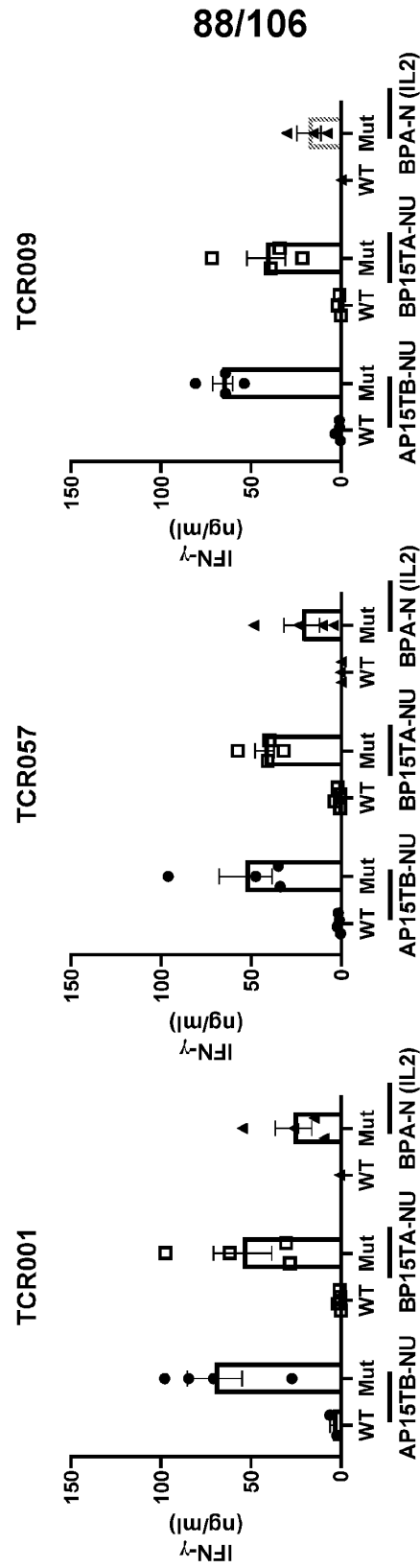


FIG. 36A

IFN- γ after LTWD culture

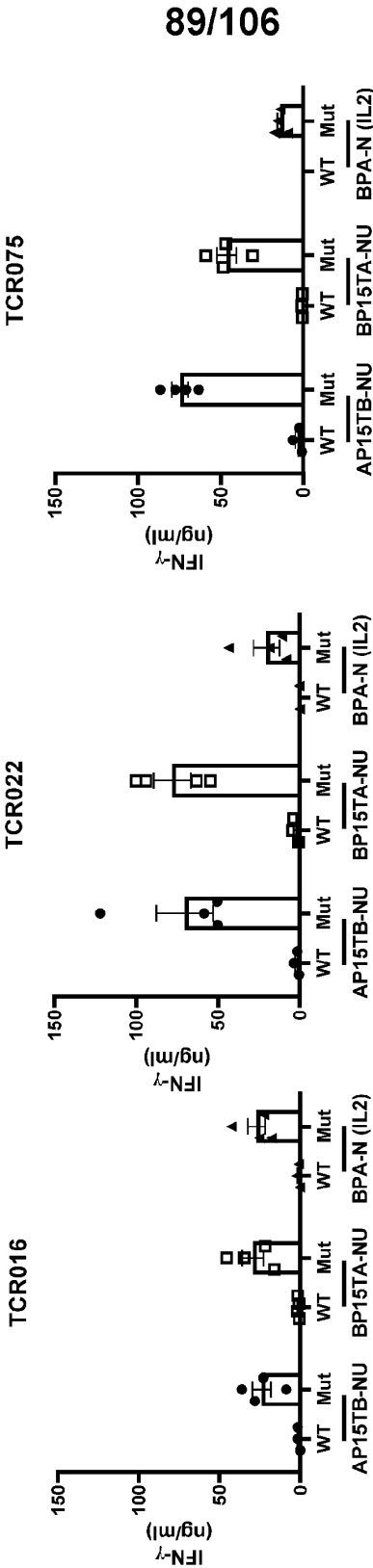


FIG. 36B

IFN- γ after LTWD culture

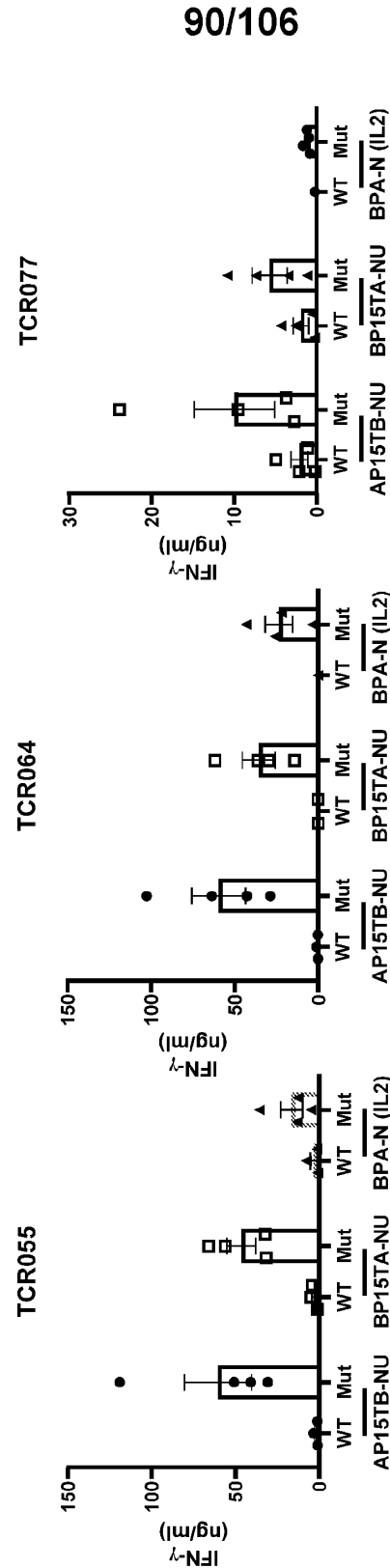


FIG. 36C

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR001

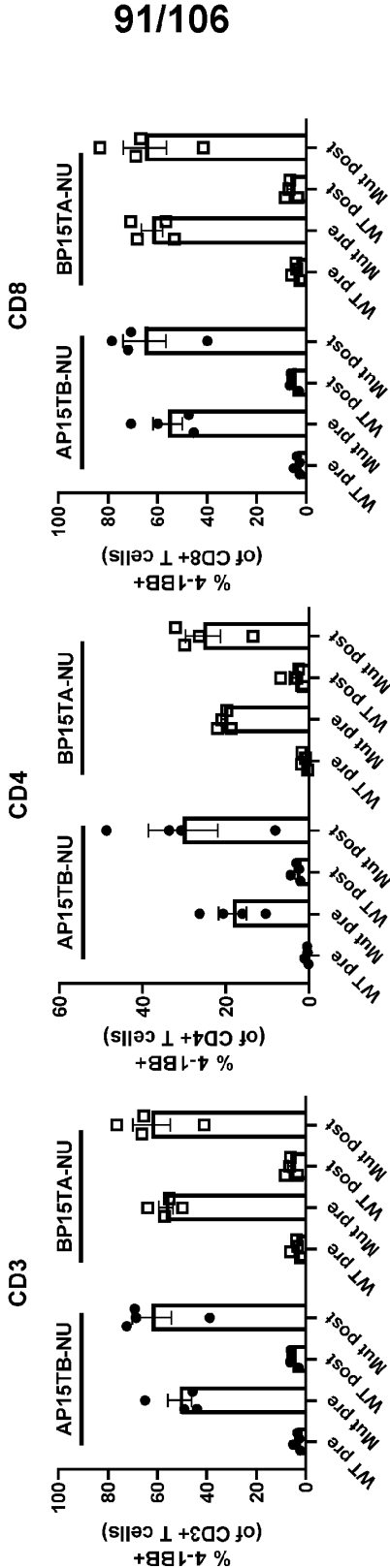


FIG. 37A

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR057

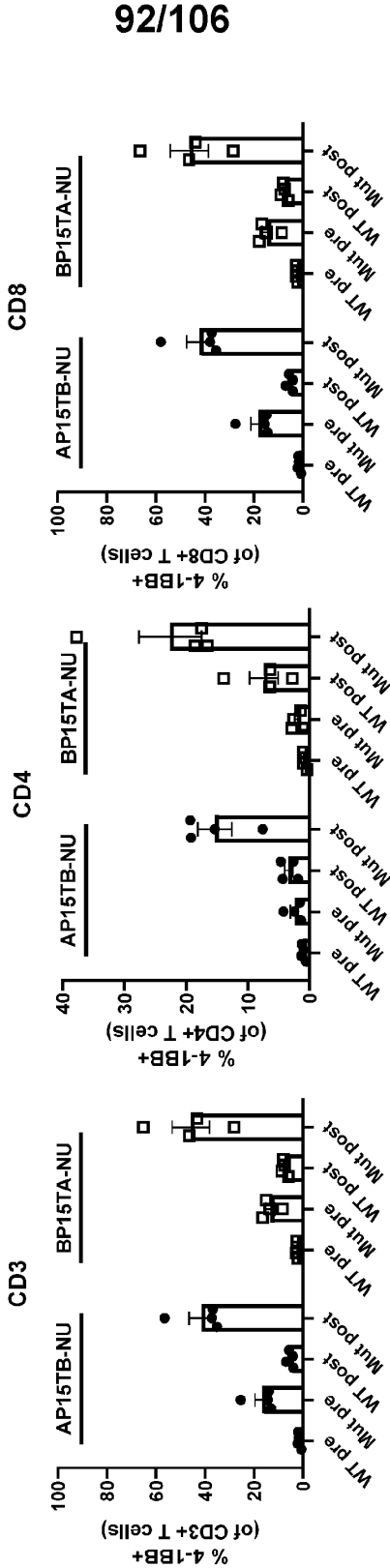


FIG. 37B

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR009

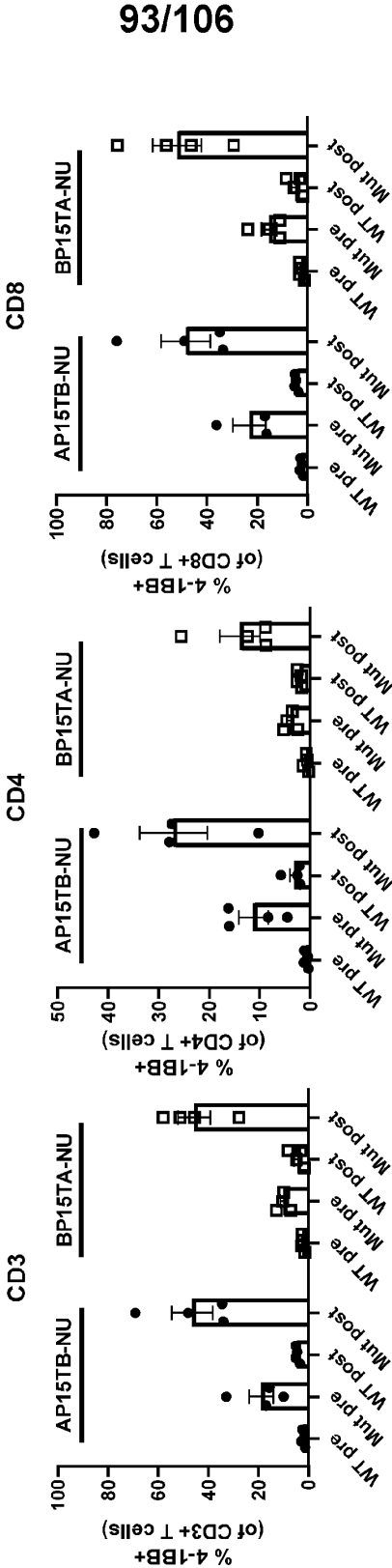


FIG. 37C

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR016

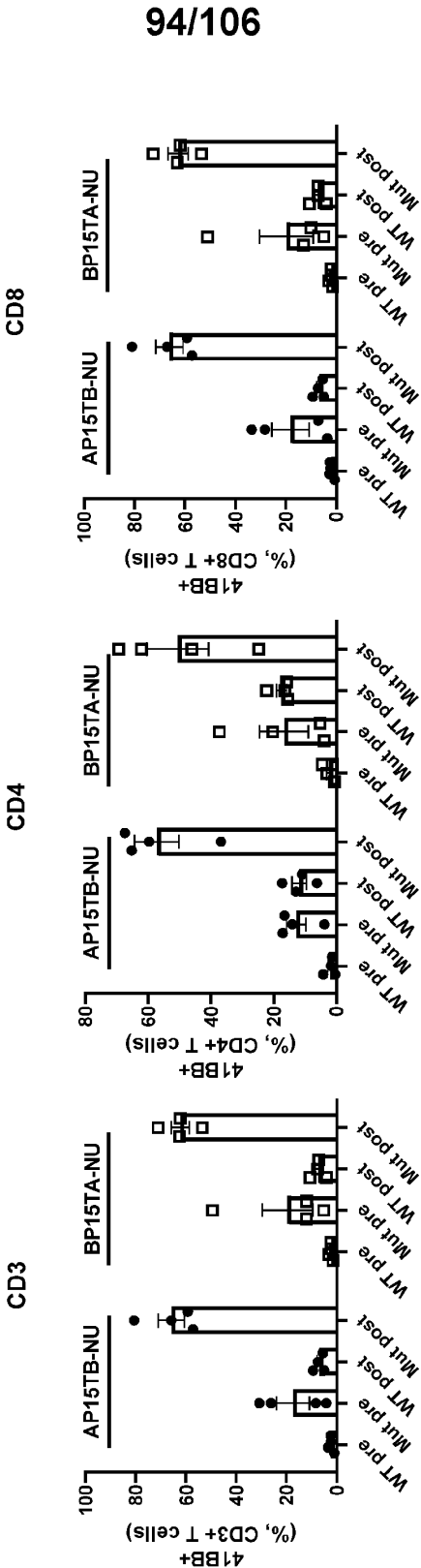


FIG. 37D

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR022

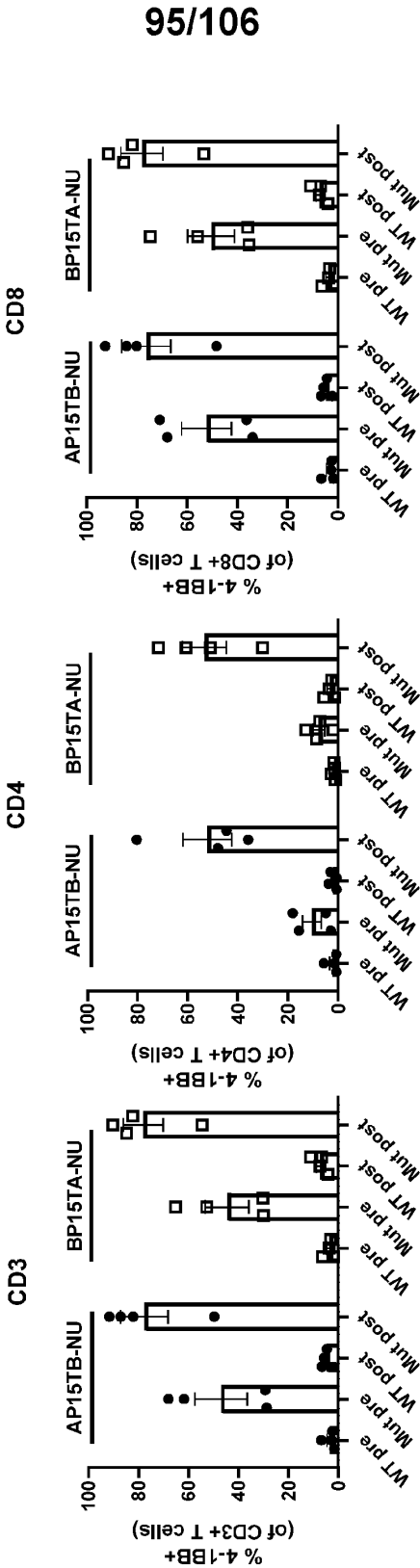


FIG. 37E

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR075

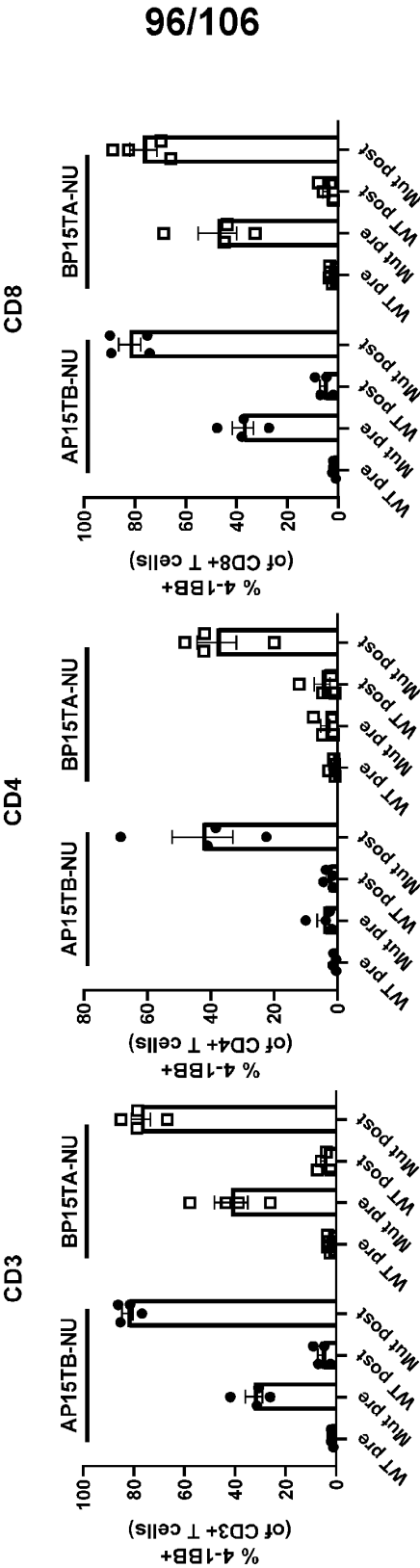


FIG. 37F

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR055

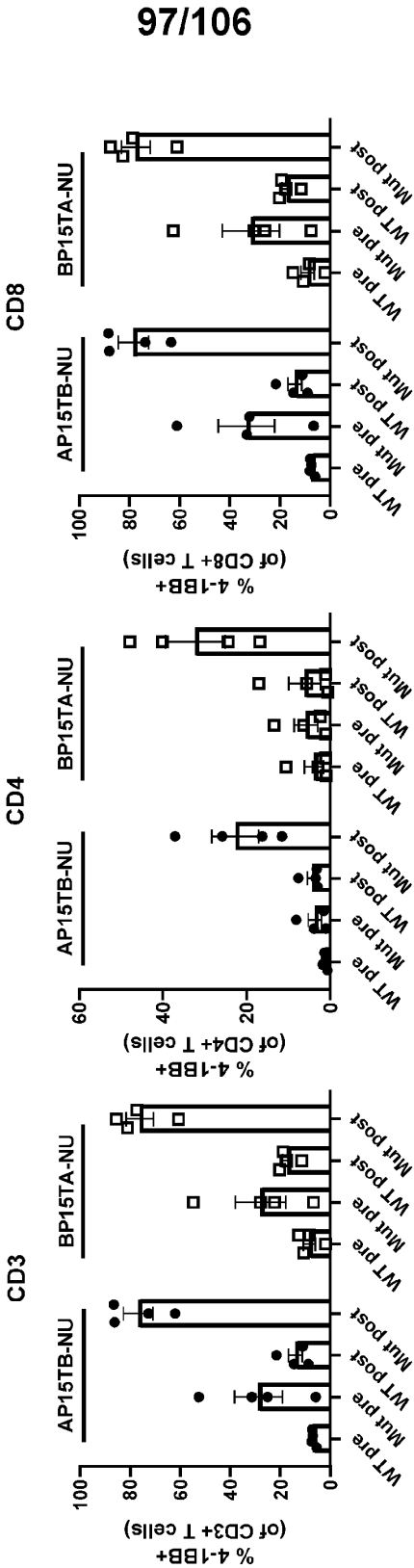


FIG. 37G

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR064

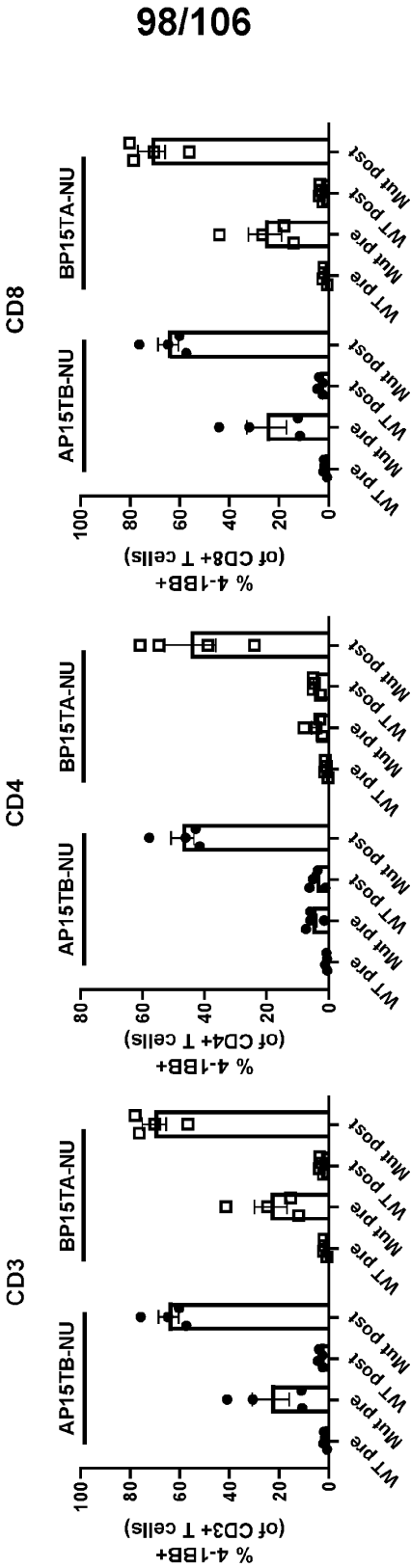


FIG. 37H

Comparison of 4-1BB Induction pre- and post- LTWD culture

TCR077

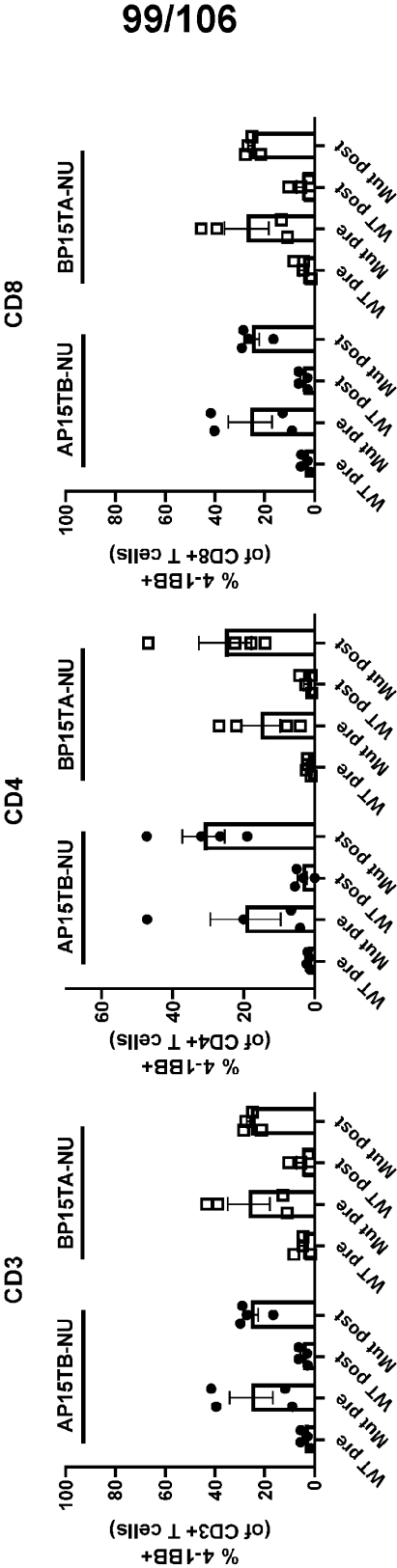


FIG. 37I

Memory Phenotype of Engineered T cells at D11



FIG. 38

Memory Phenotype of Engineered T cells at D22

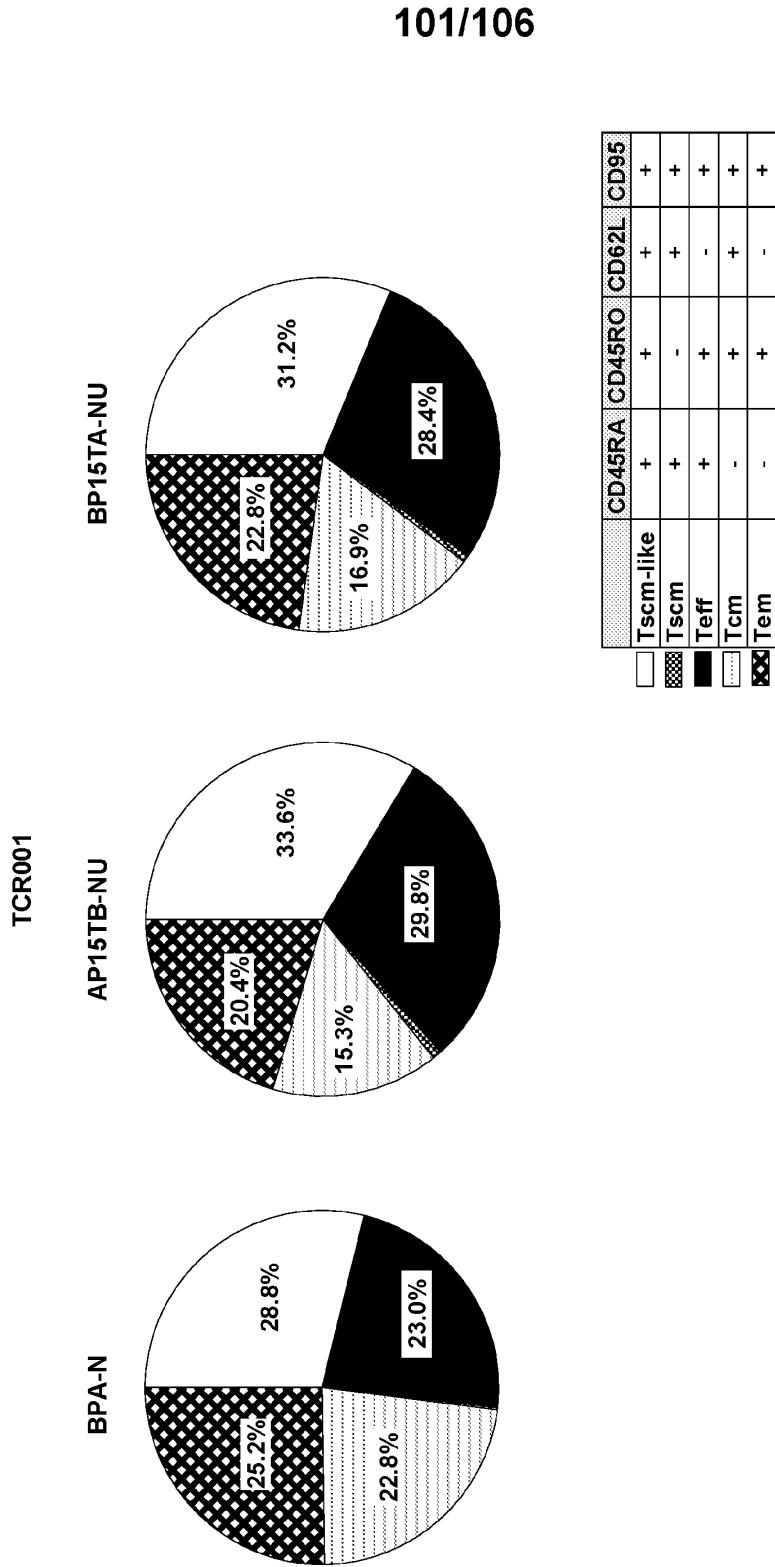
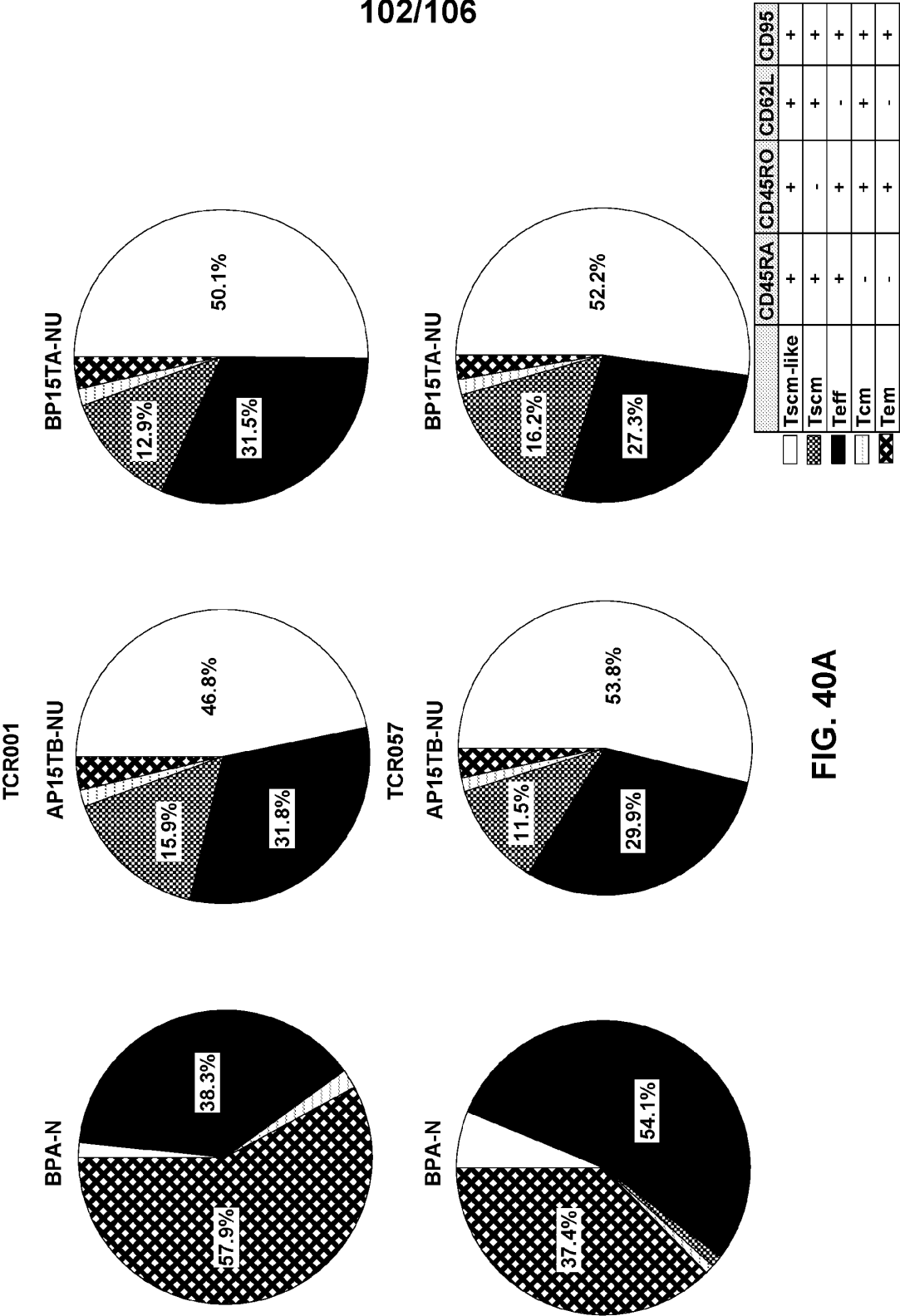
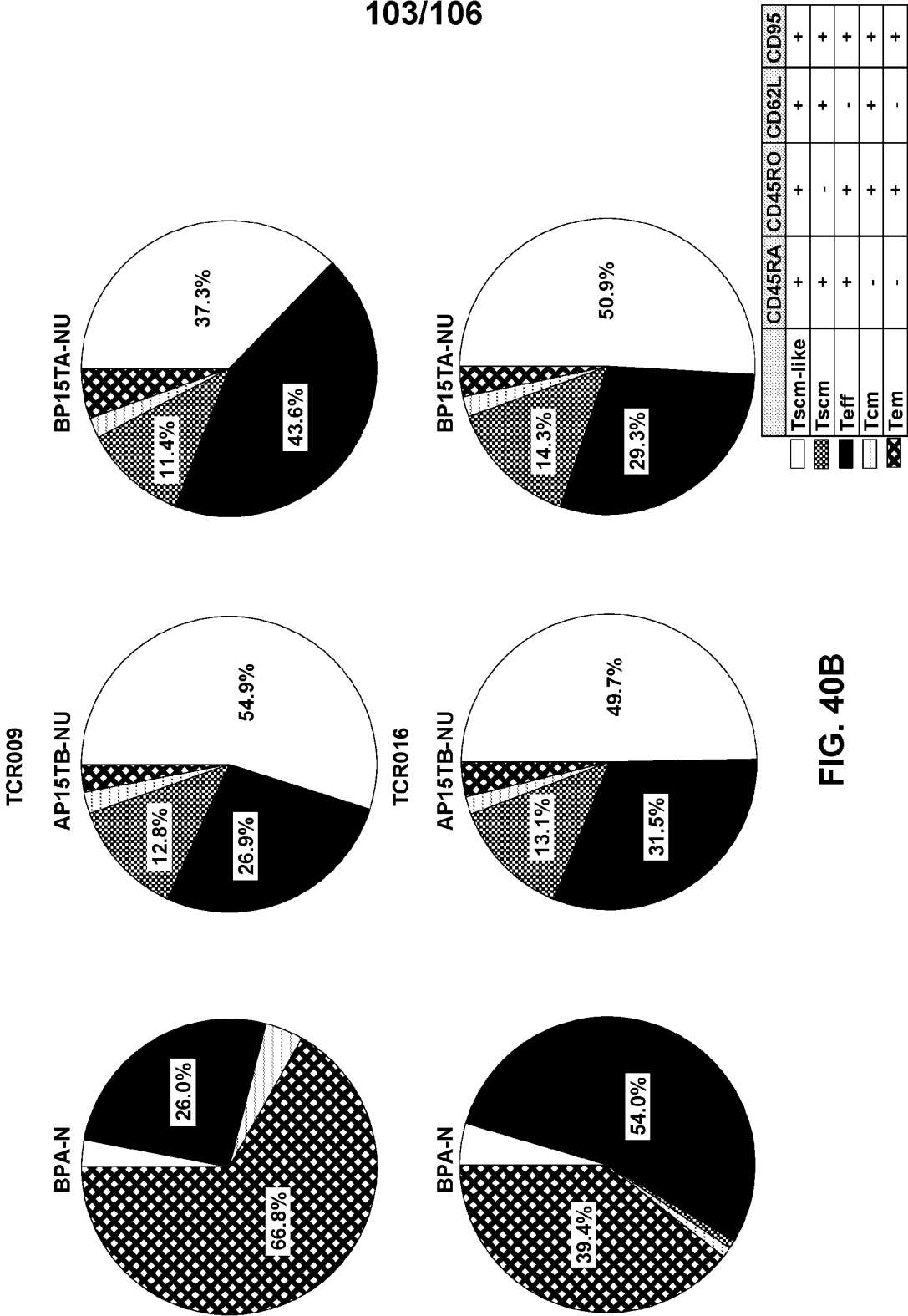


FIG. 39

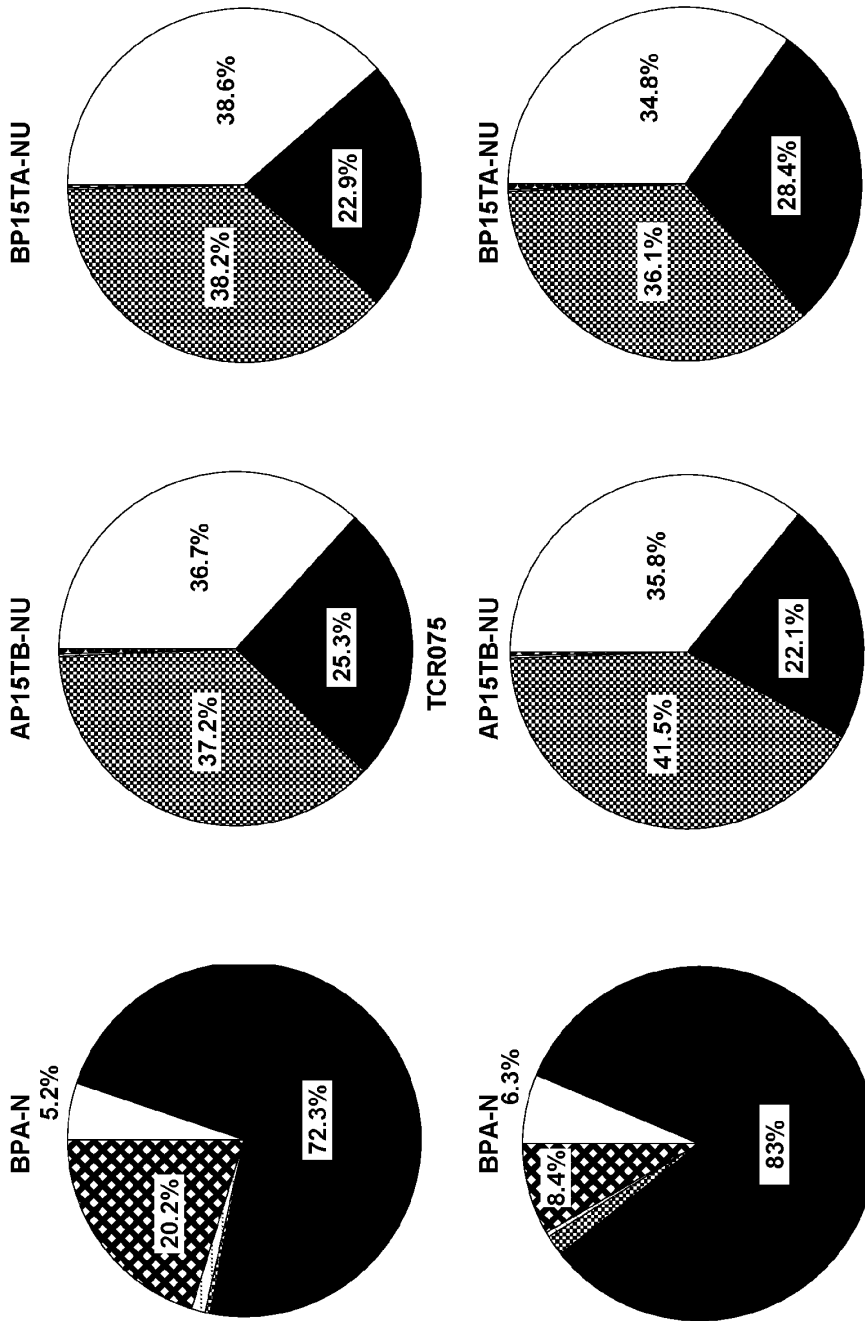
Memory Phenotype of Engineered T cells after LTWD



Memory Phenotype of Engineered T cells after LTWD



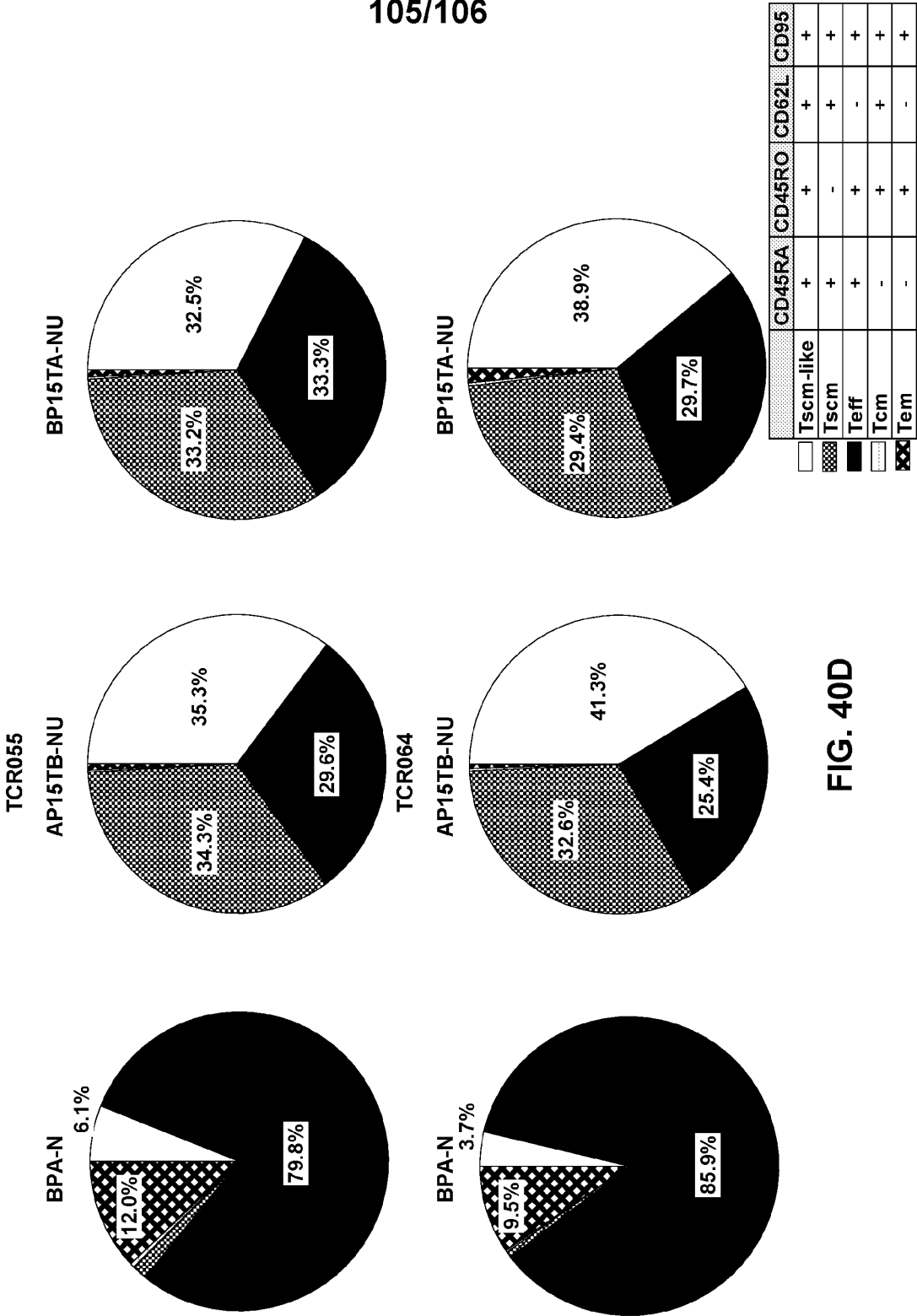
Memory Phenotype of Engineered T cells after LTWD



	CD45RA	CD45RO	CD62L	CD95
Tscm-like	+	+	+	+
Tscm	+	-	+	+
Teff	+	+	-	+
Tcm	-	+	+	+
Tem	-	+	-	+

FIG. 40C

Memory Phenotype of Engineered T cells after LTWD



Memory Phenotype of Engineered T cells after LTWD

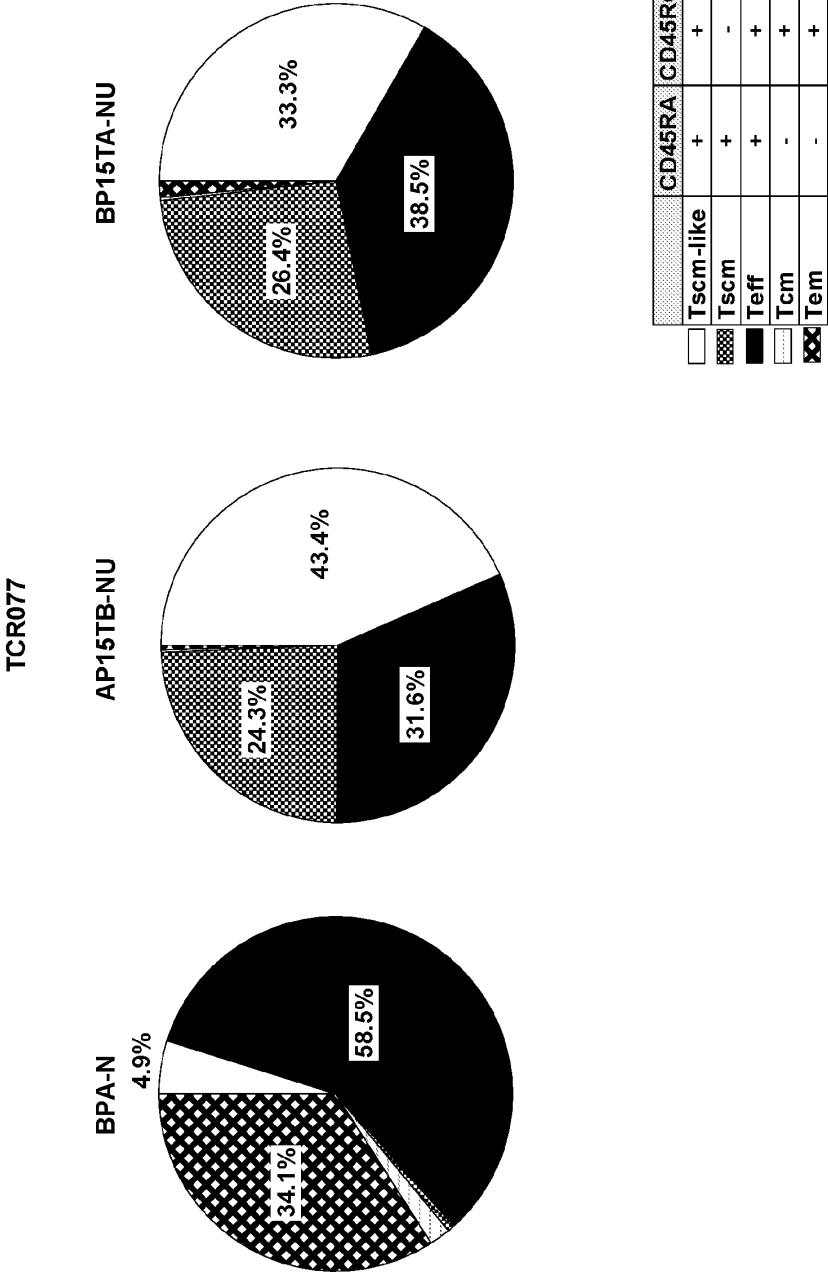


FIG. 40E