

1/64

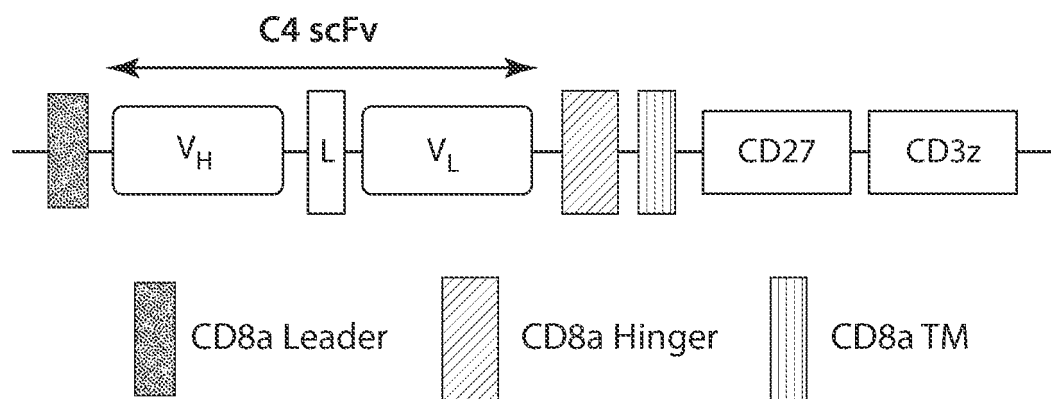


FIG. 1A

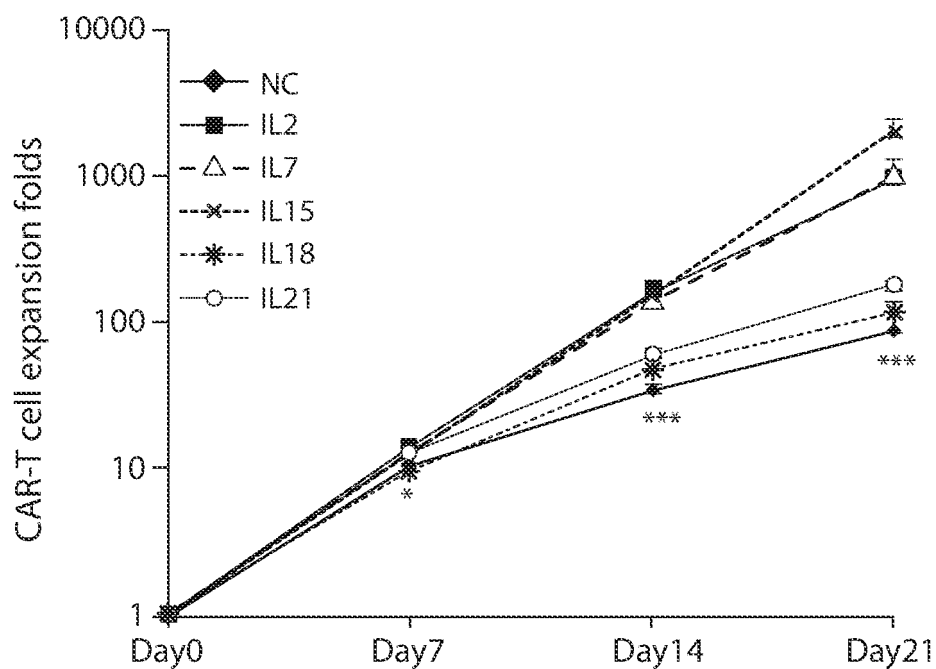


FIG. 1B

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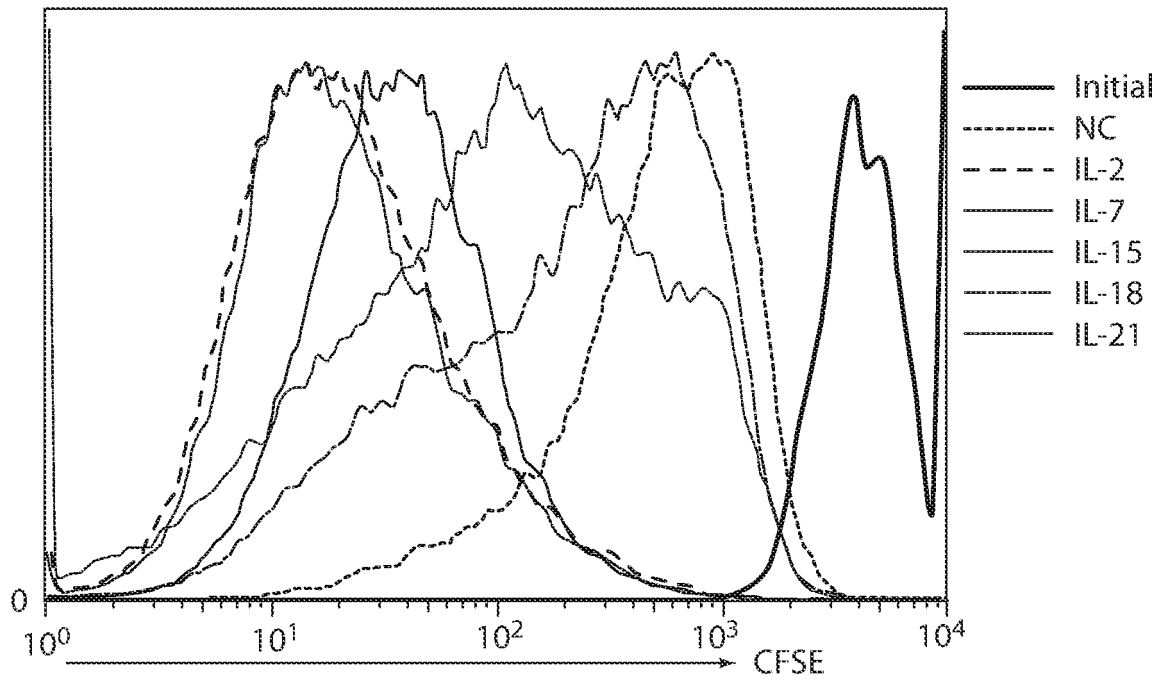


FIG. 1C

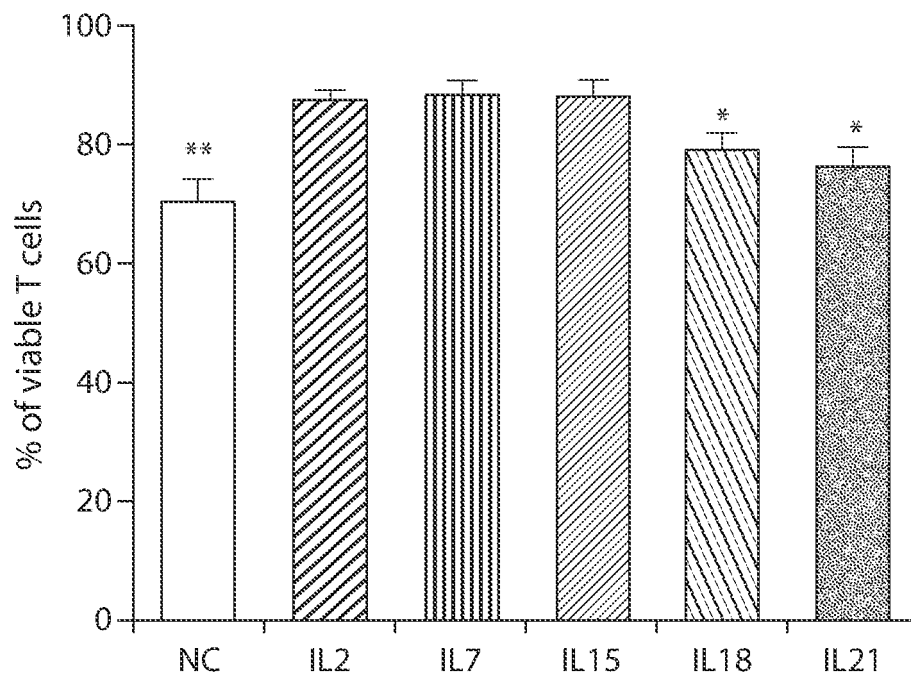


FIG. 1D

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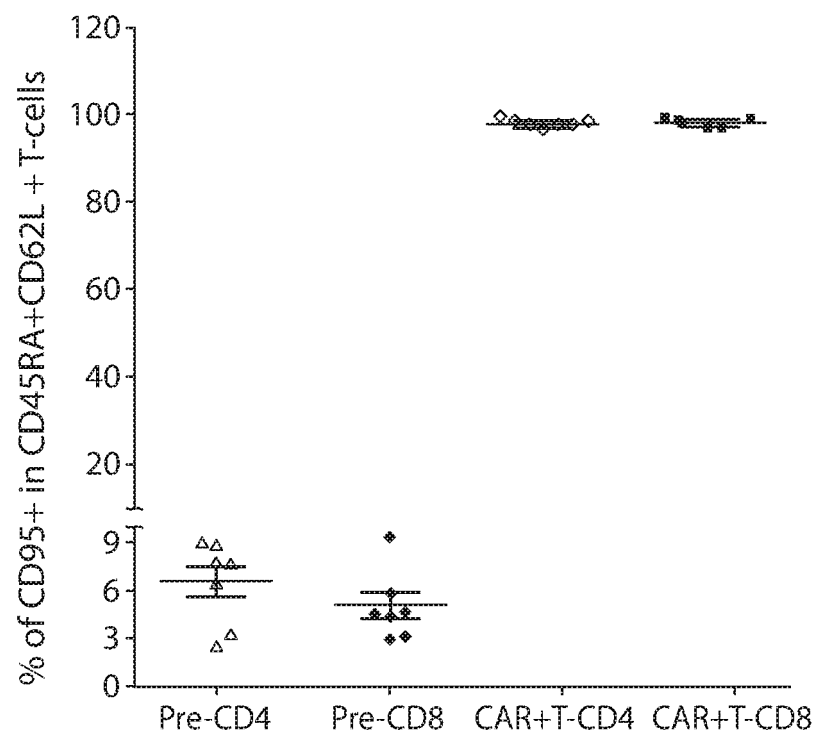


FIG. 2A

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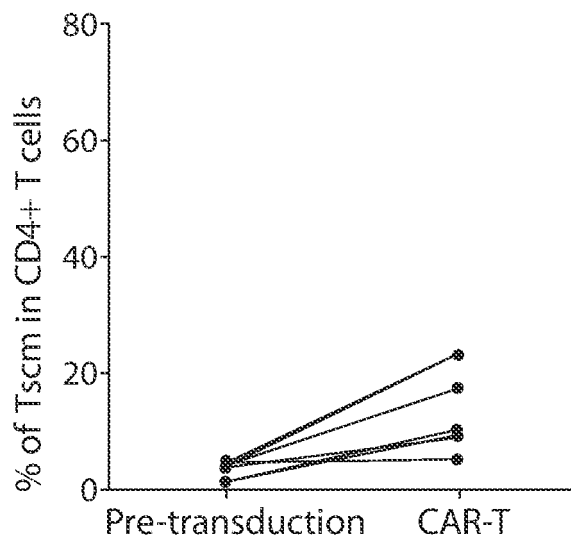


FIG. 2B

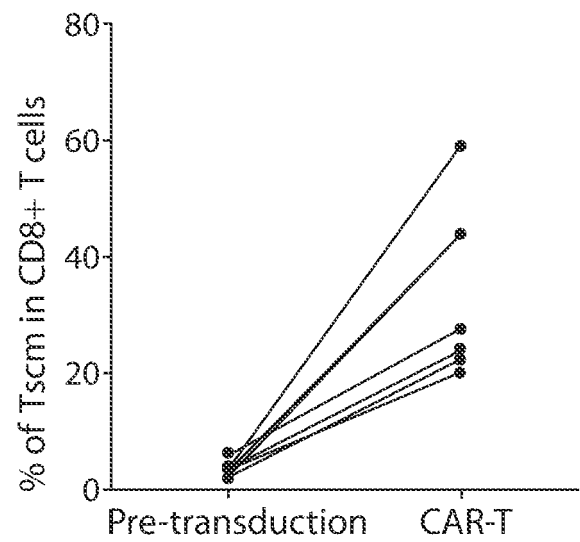


FIG. 2C

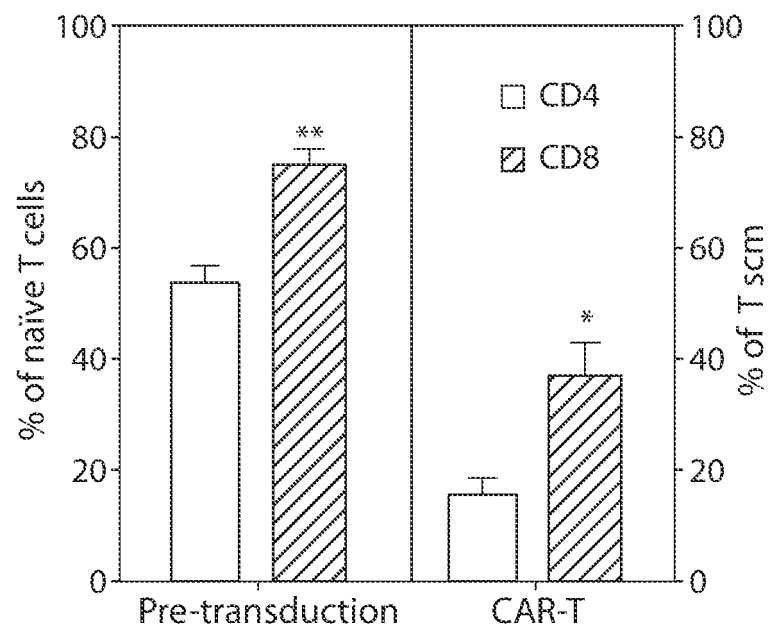


FIG. 2D

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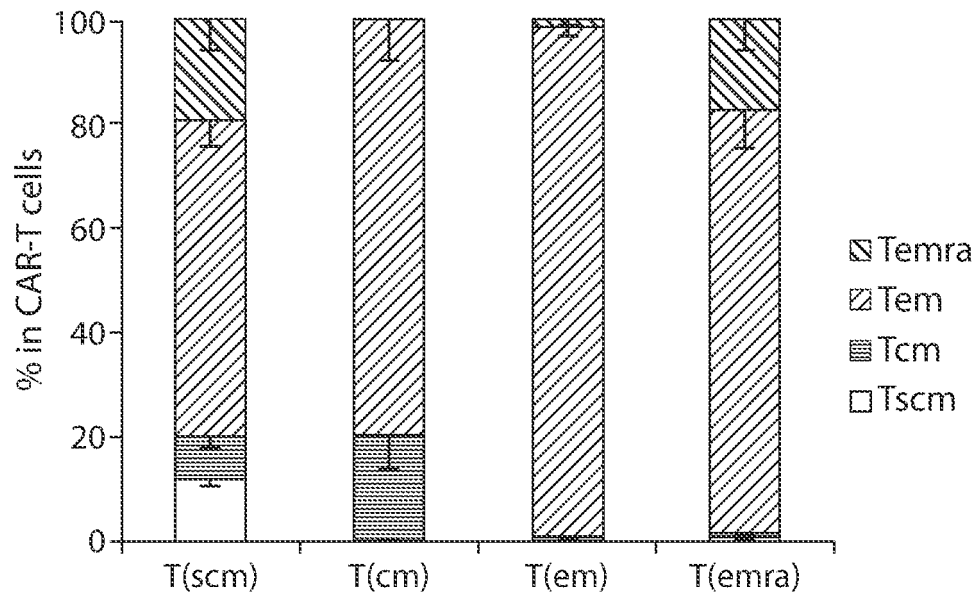


FIG. 2E

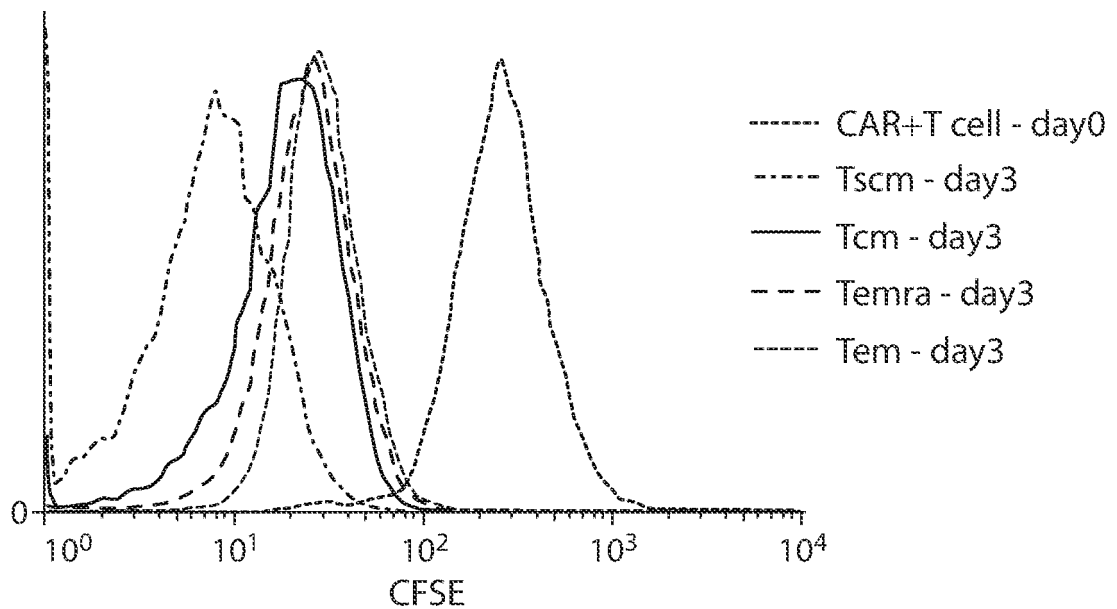


FIG. 2F

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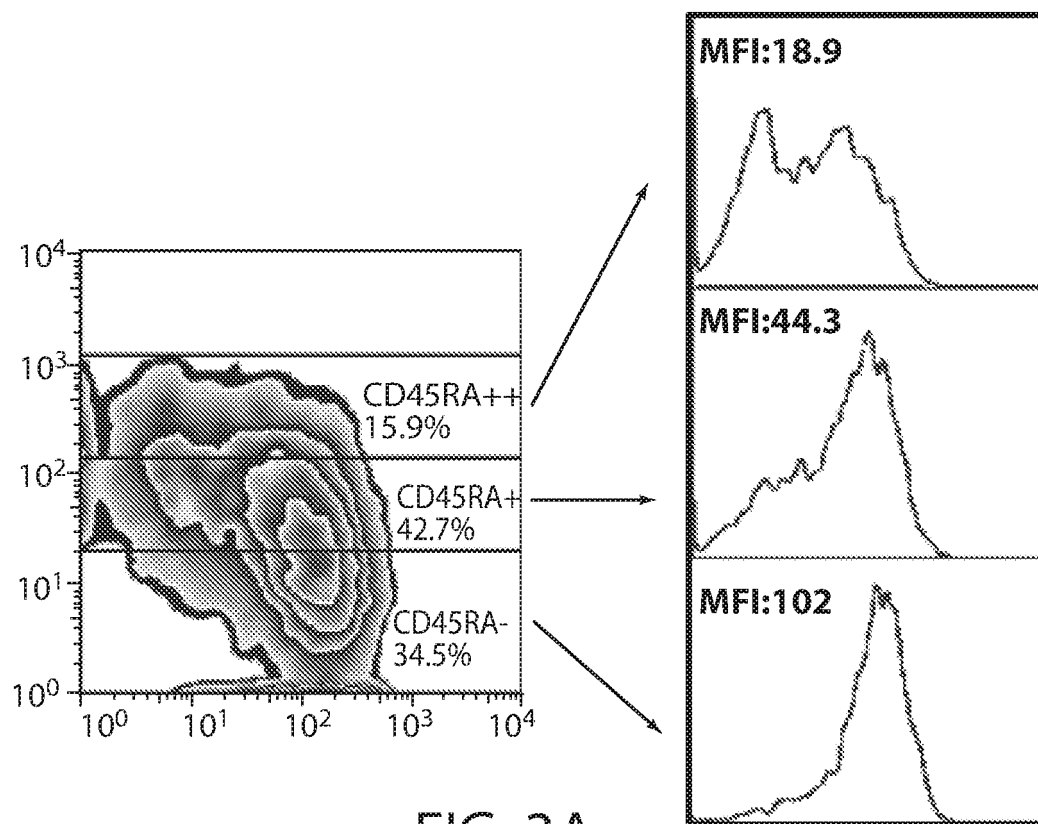


FIG. 3A

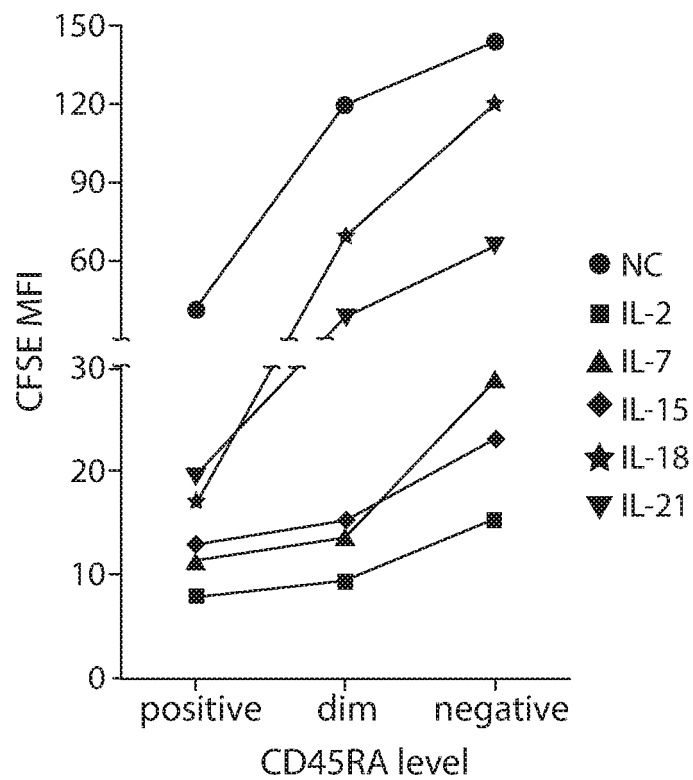


FIG. 3B

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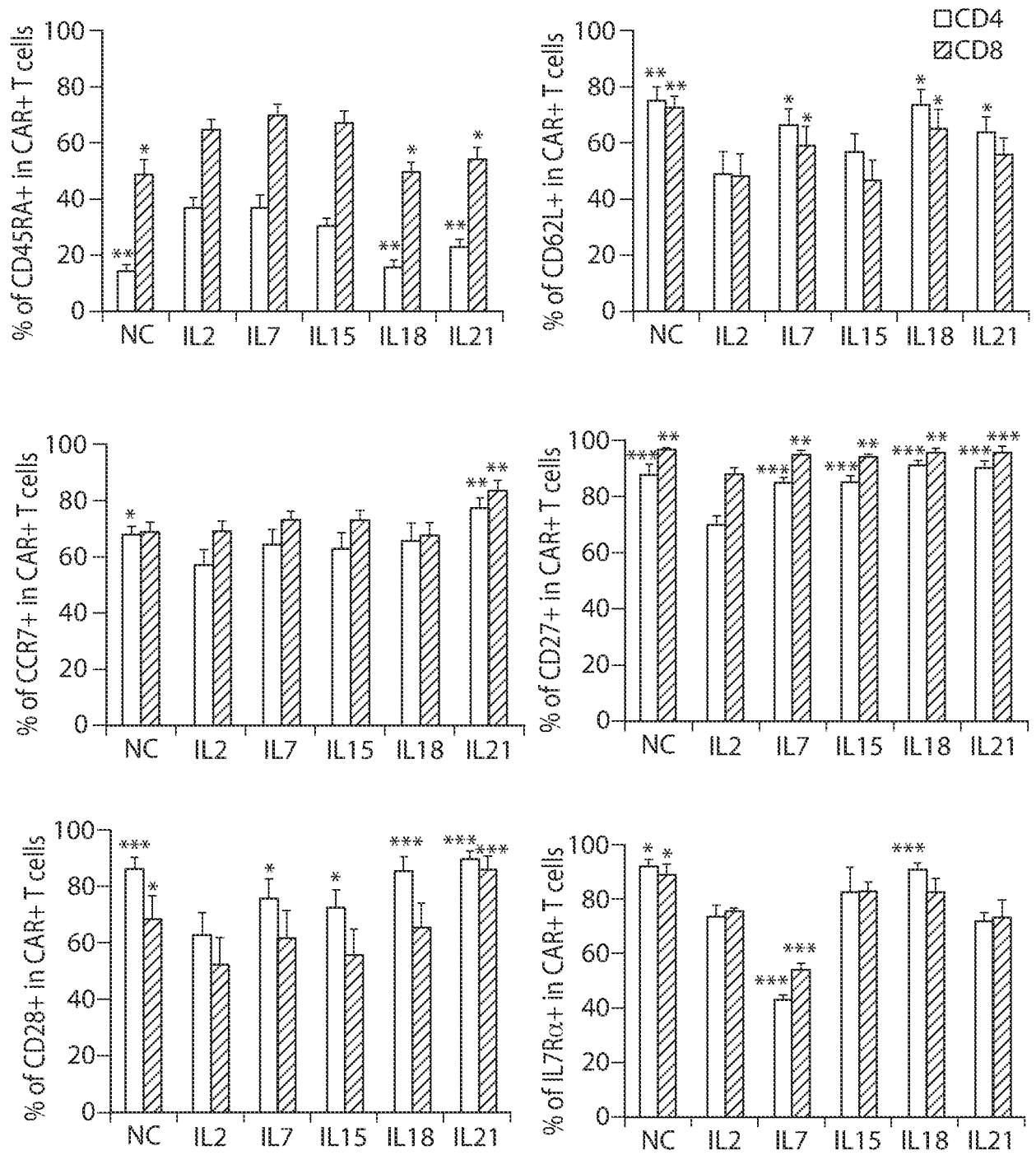


FIG. 4

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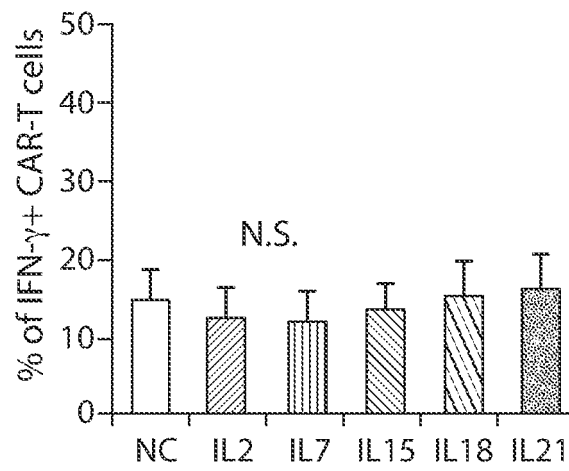


FIG. 5A

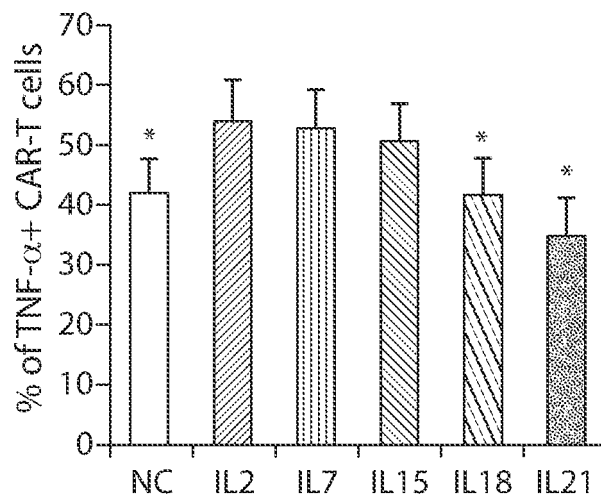


FIG. 5B

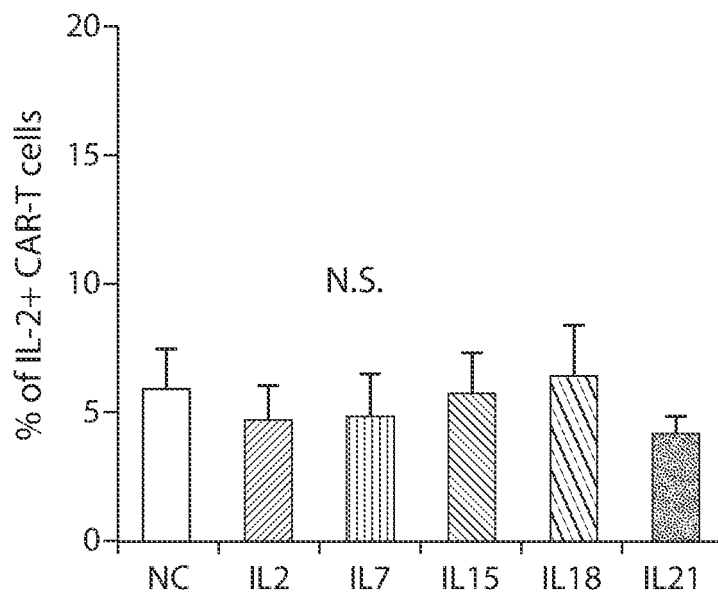


FIG. 5C

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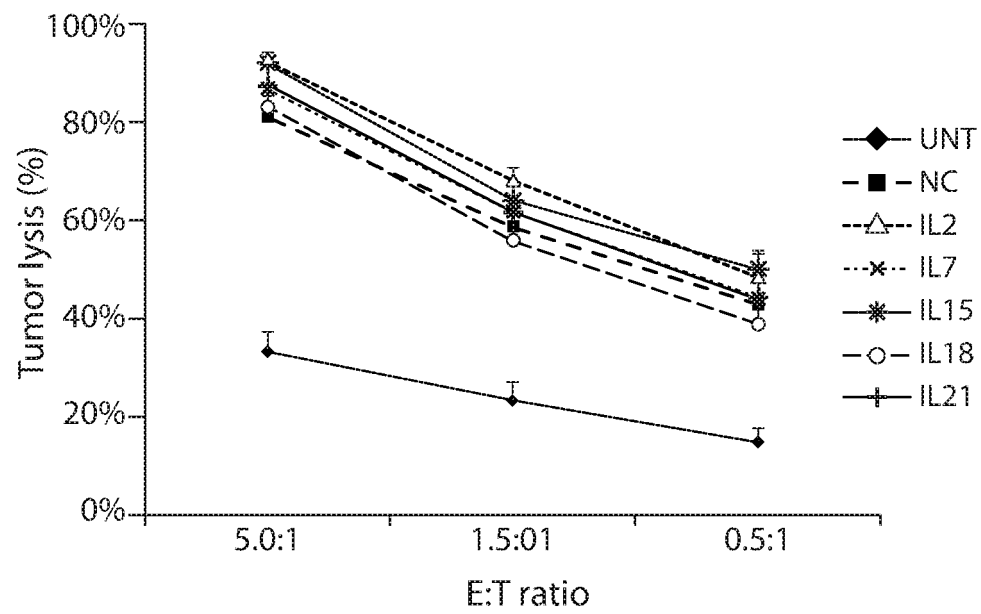


FIG. 5D

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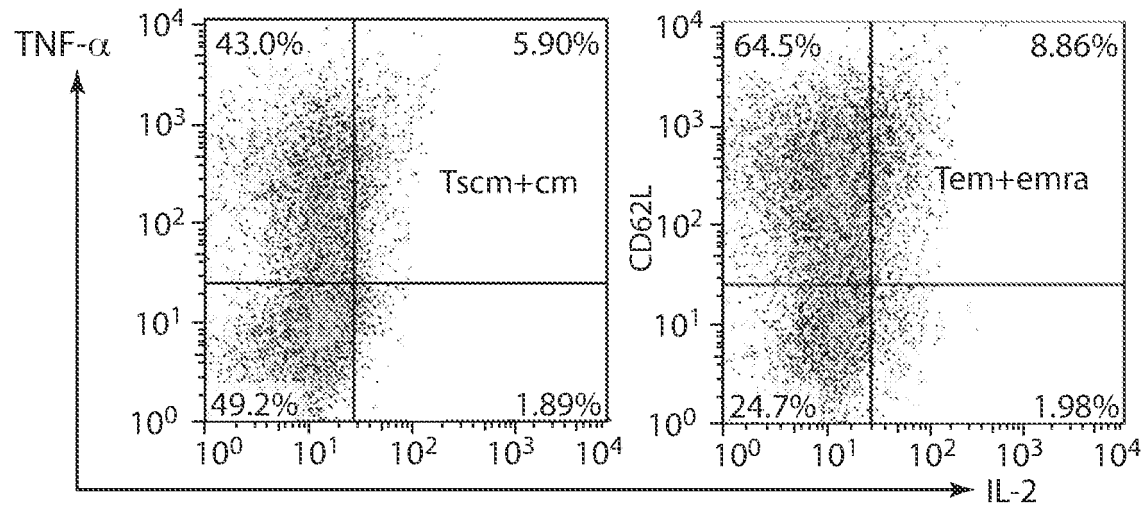


FIG. 6A

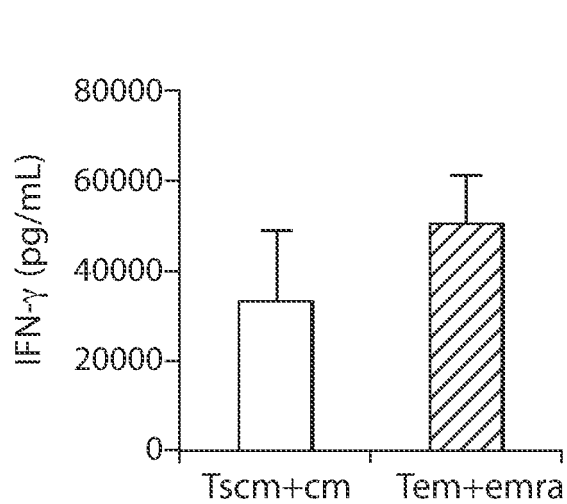


FIG. 6B

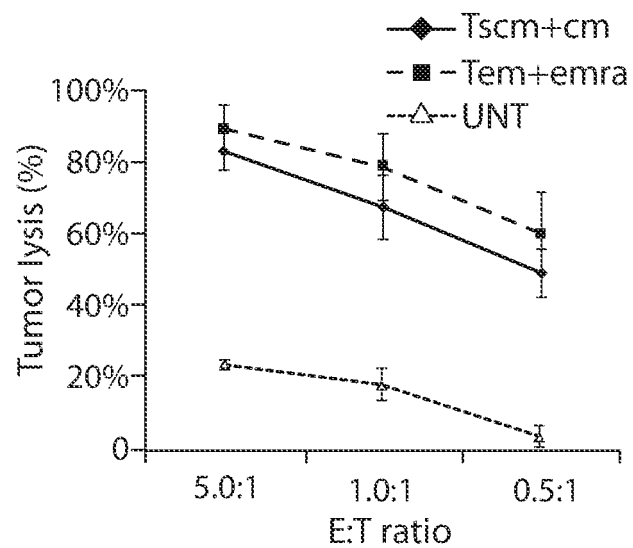


FIG. 6C

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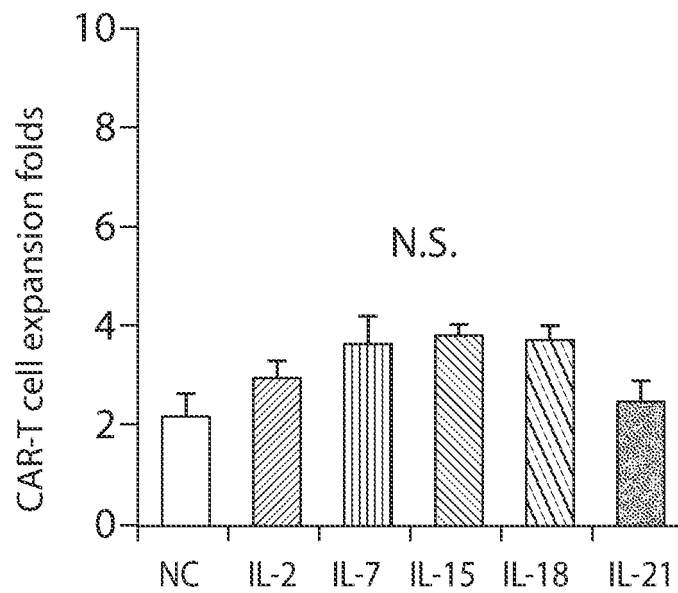
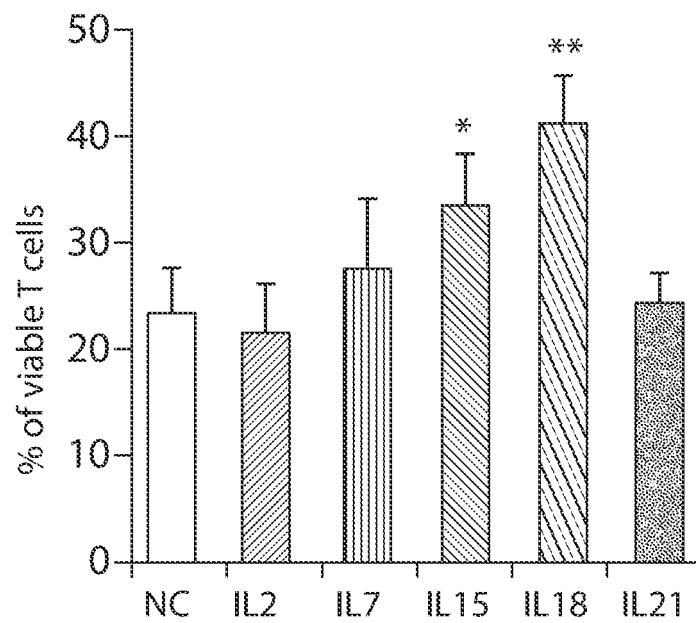


FIG. 7A

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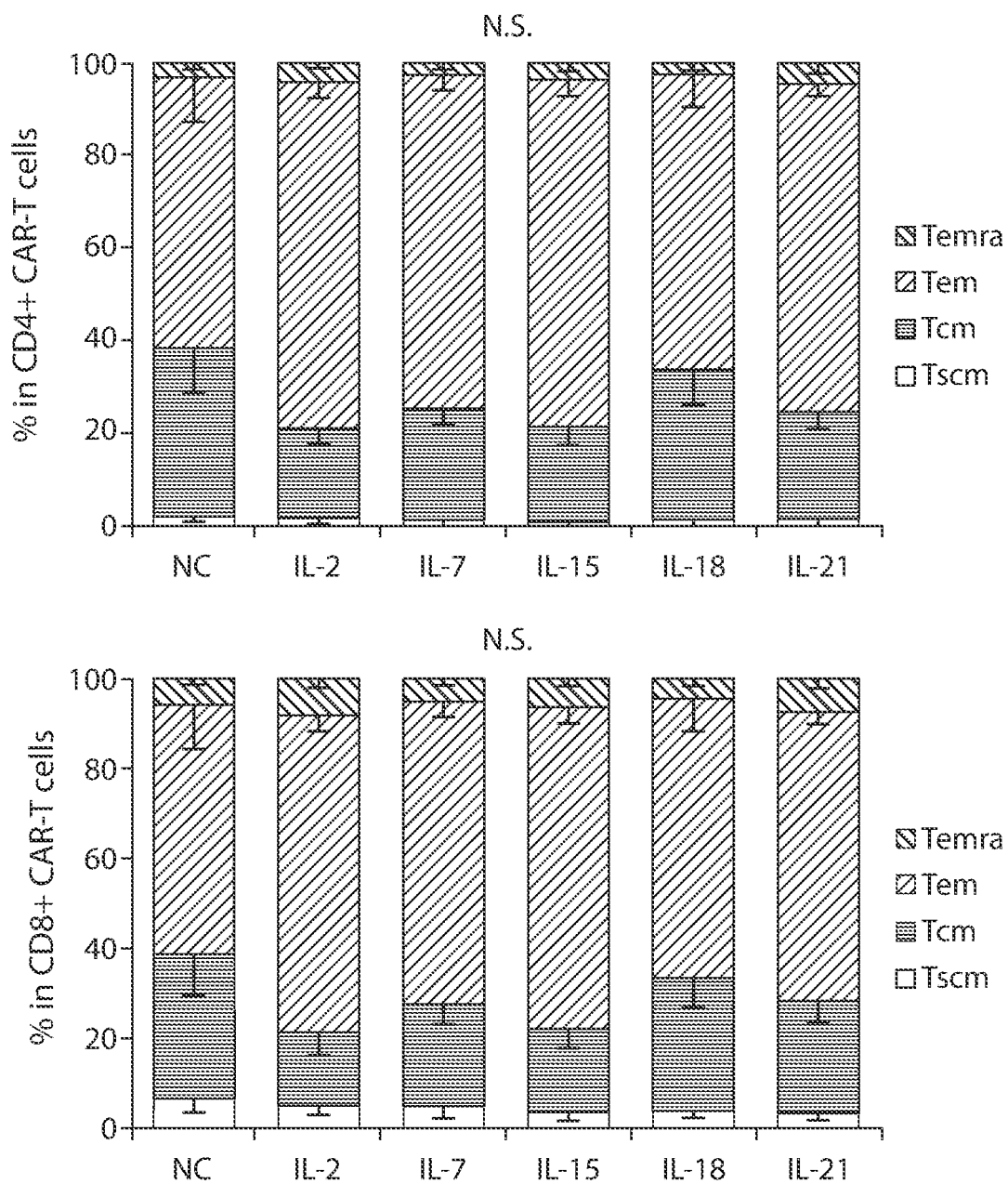


FIG. 7B

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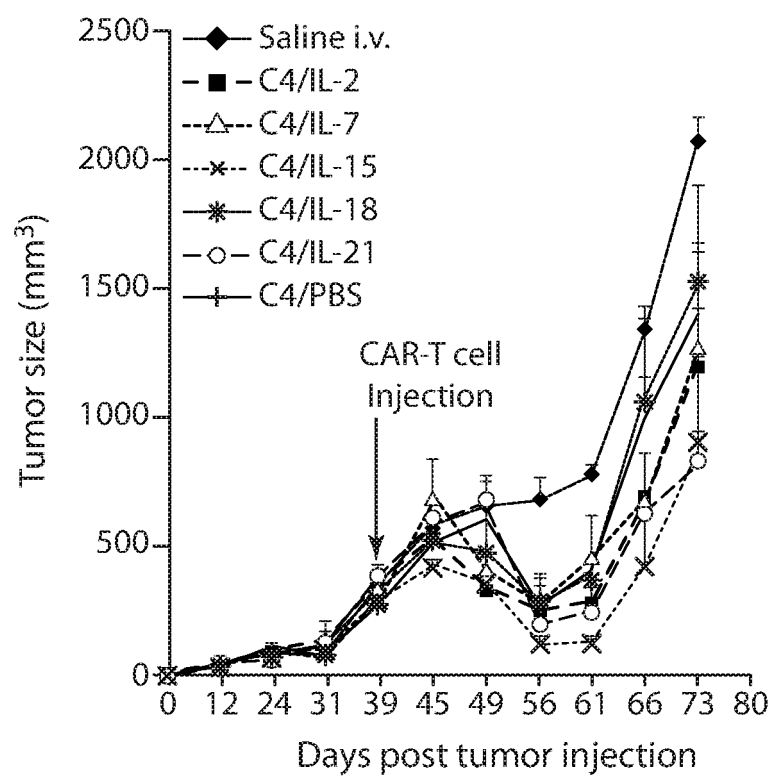


Fig. 8A

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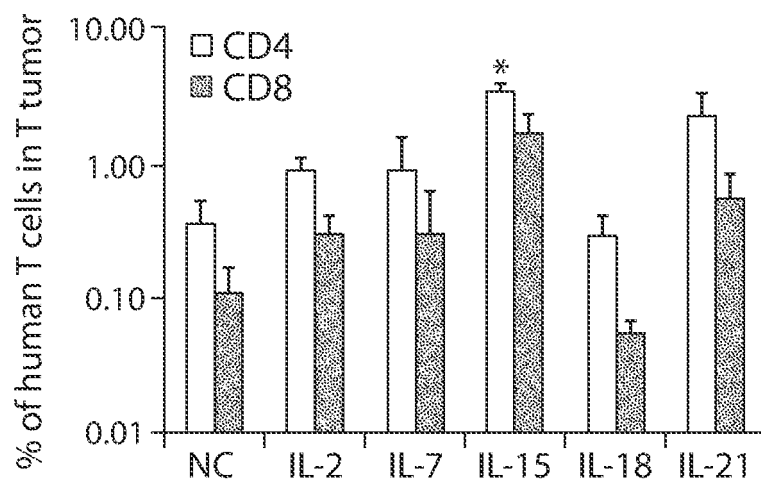


FIG. 8B

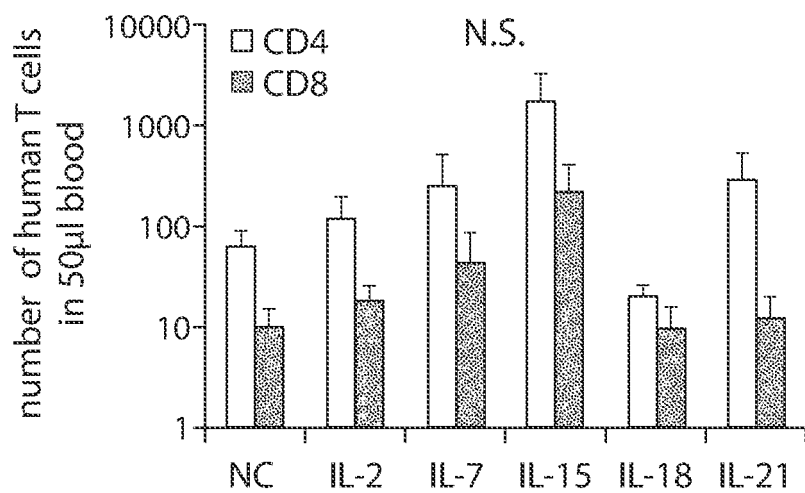


FIG. 8C

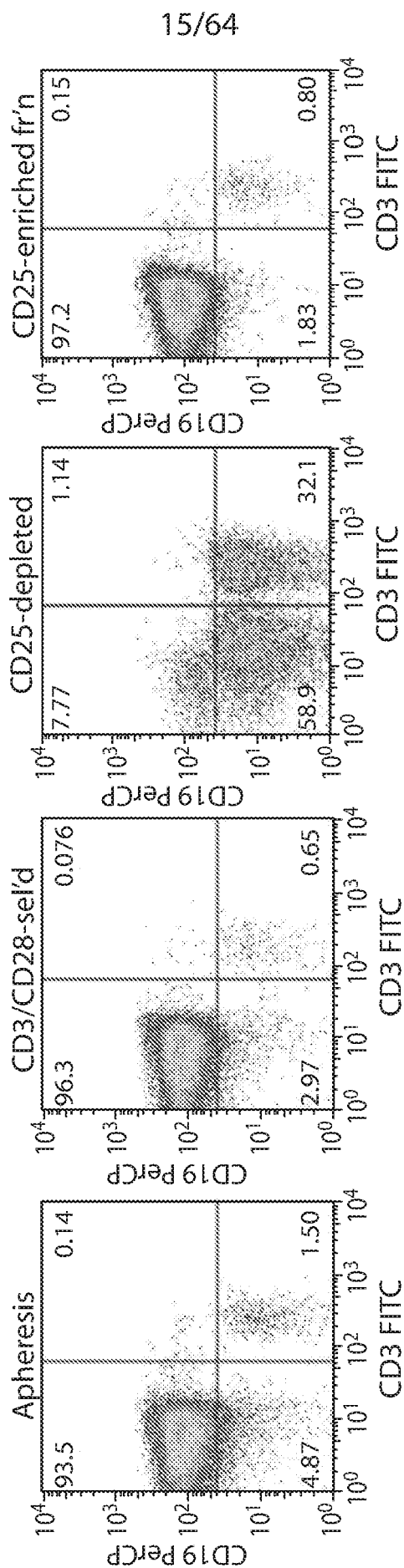


FIG. 9

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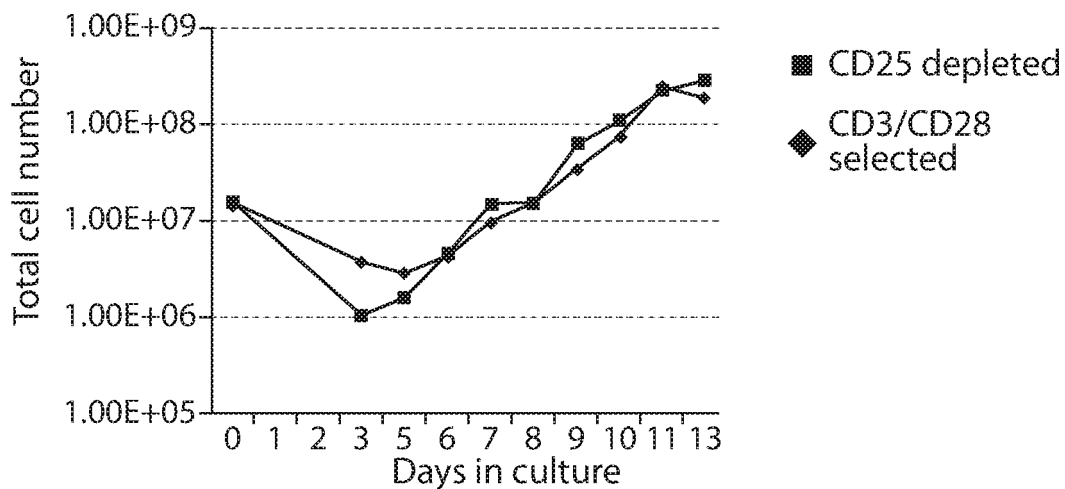


FIG. 10A

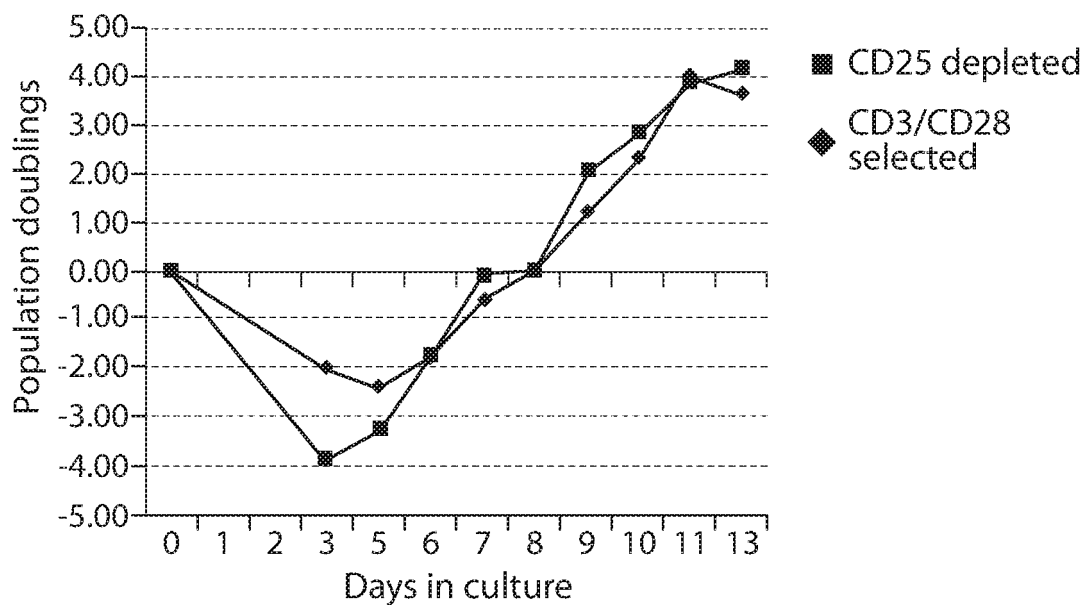


FIG. 10B

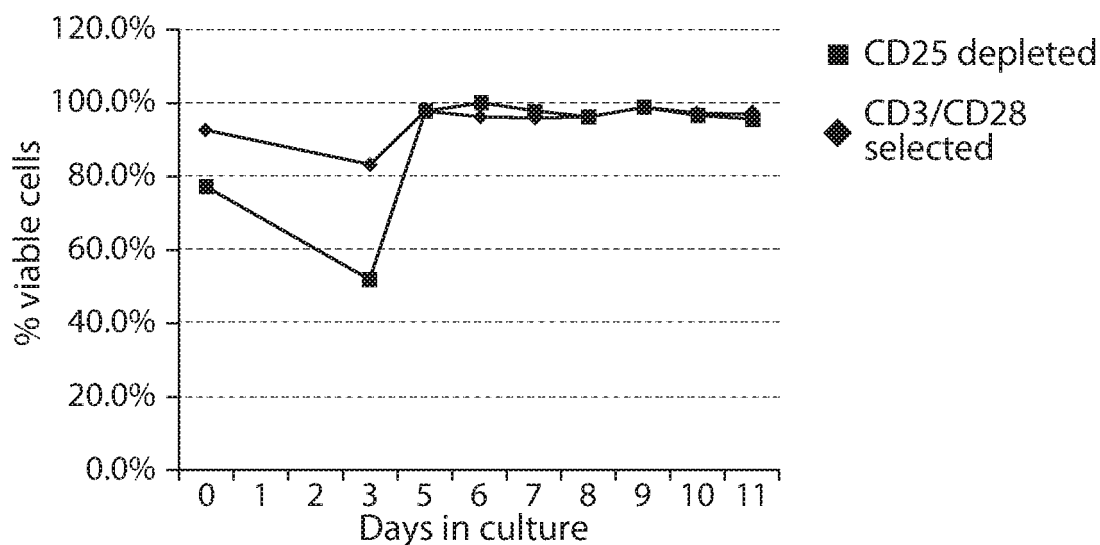


FIG. 10C

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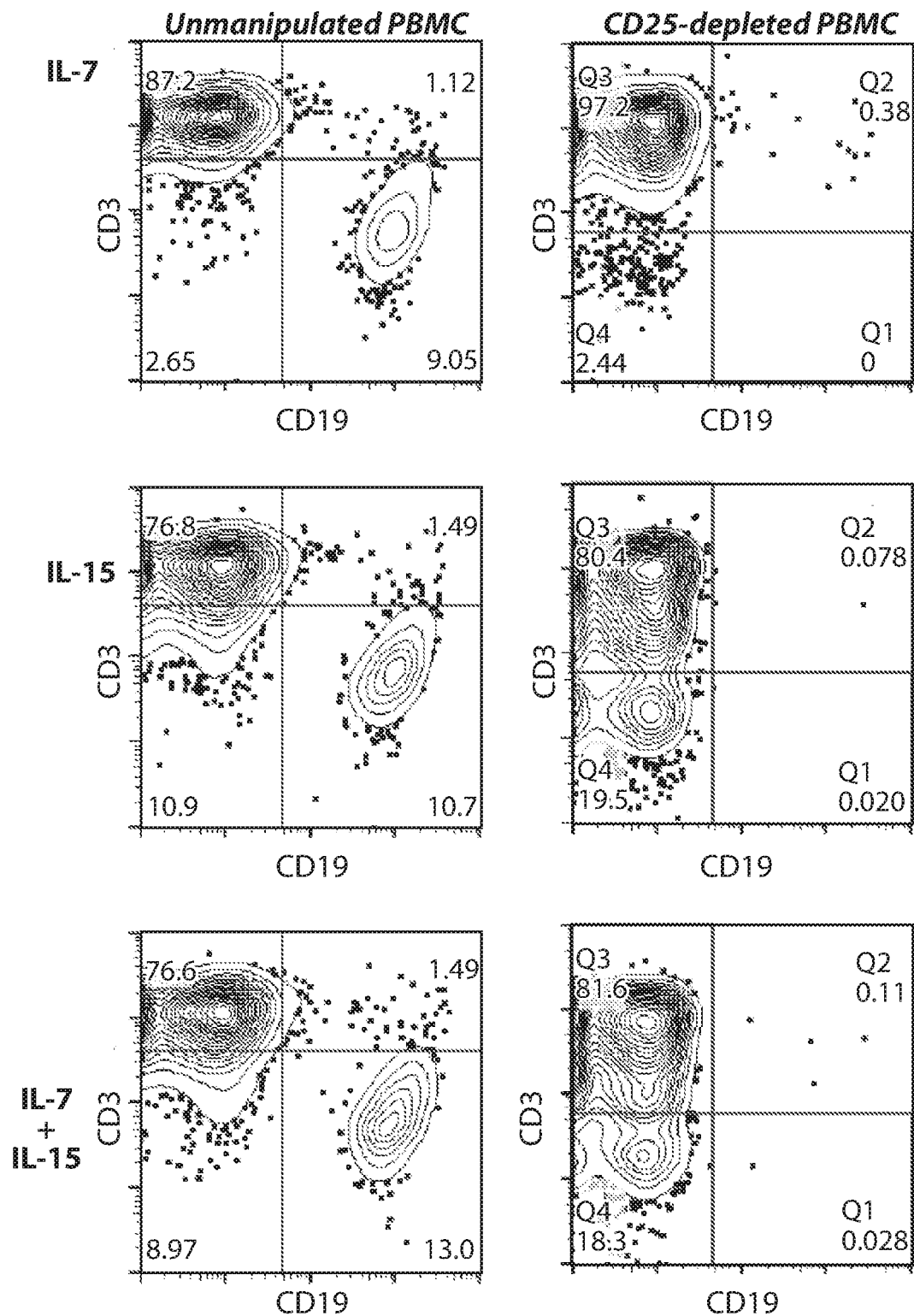


FIG. 11

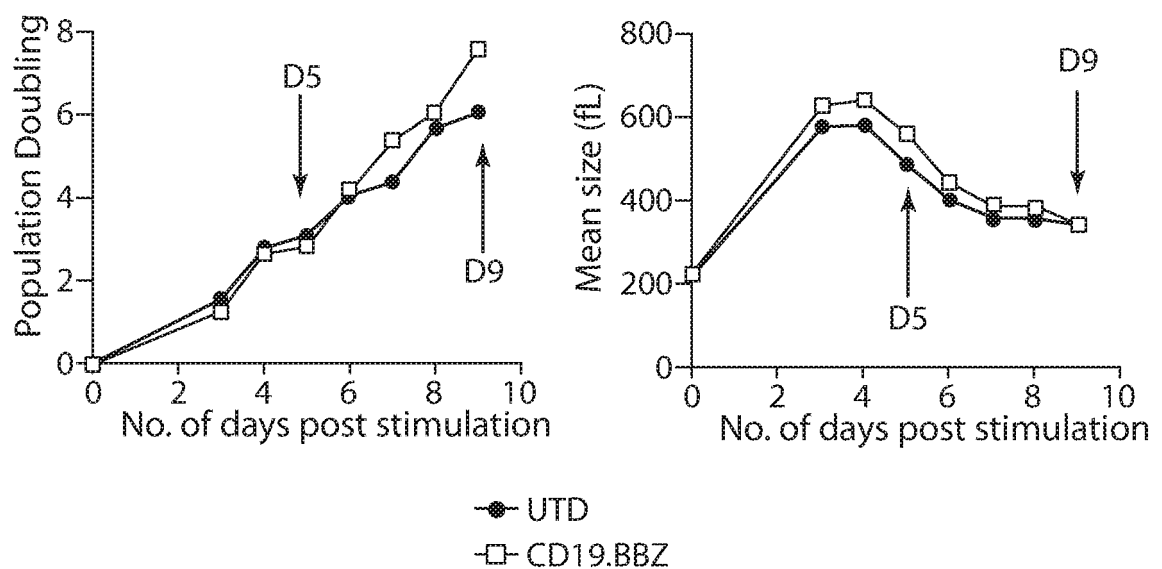
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ND447 PBMCs activated, transduced, de-beaded, and harvested at Day 5 and D9 for comparative performance in vitro and in vivo

Initial expansion profile with 3x28 beads

Harvest time points indicated by arrows

Normal donor cells



Procedures replicated CVPF protocol

FIG. 12

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There is no difference in CART19 cell killing from cells isolated at day 5 and day 9 from expansion

Cytotoxicity assay (18hr)

Target: K562-CD19

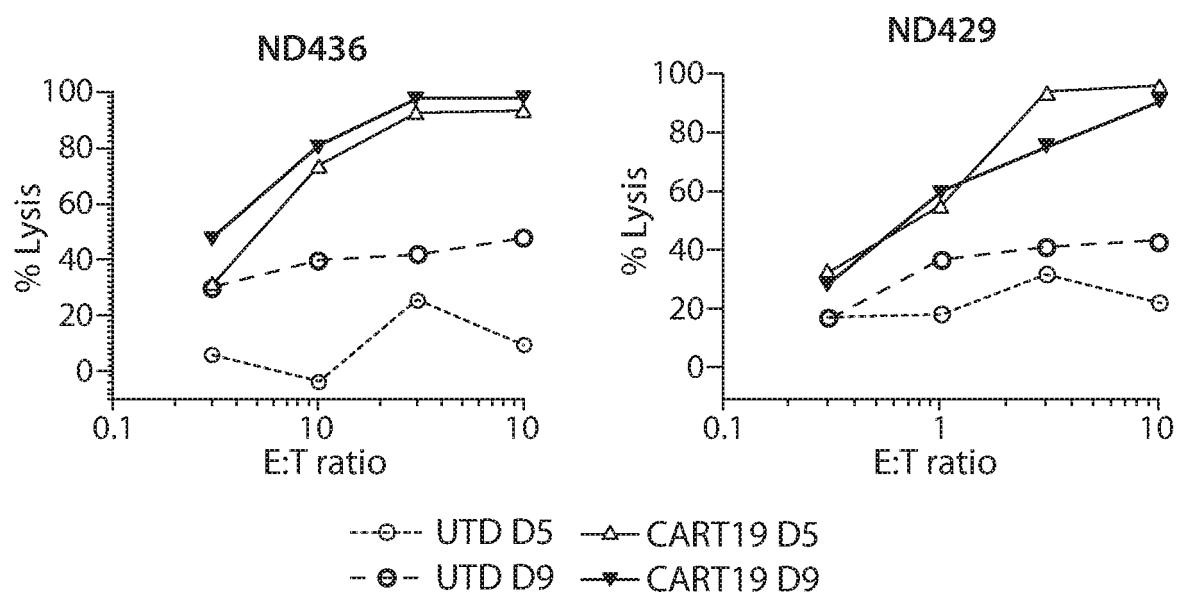


FIG. 13

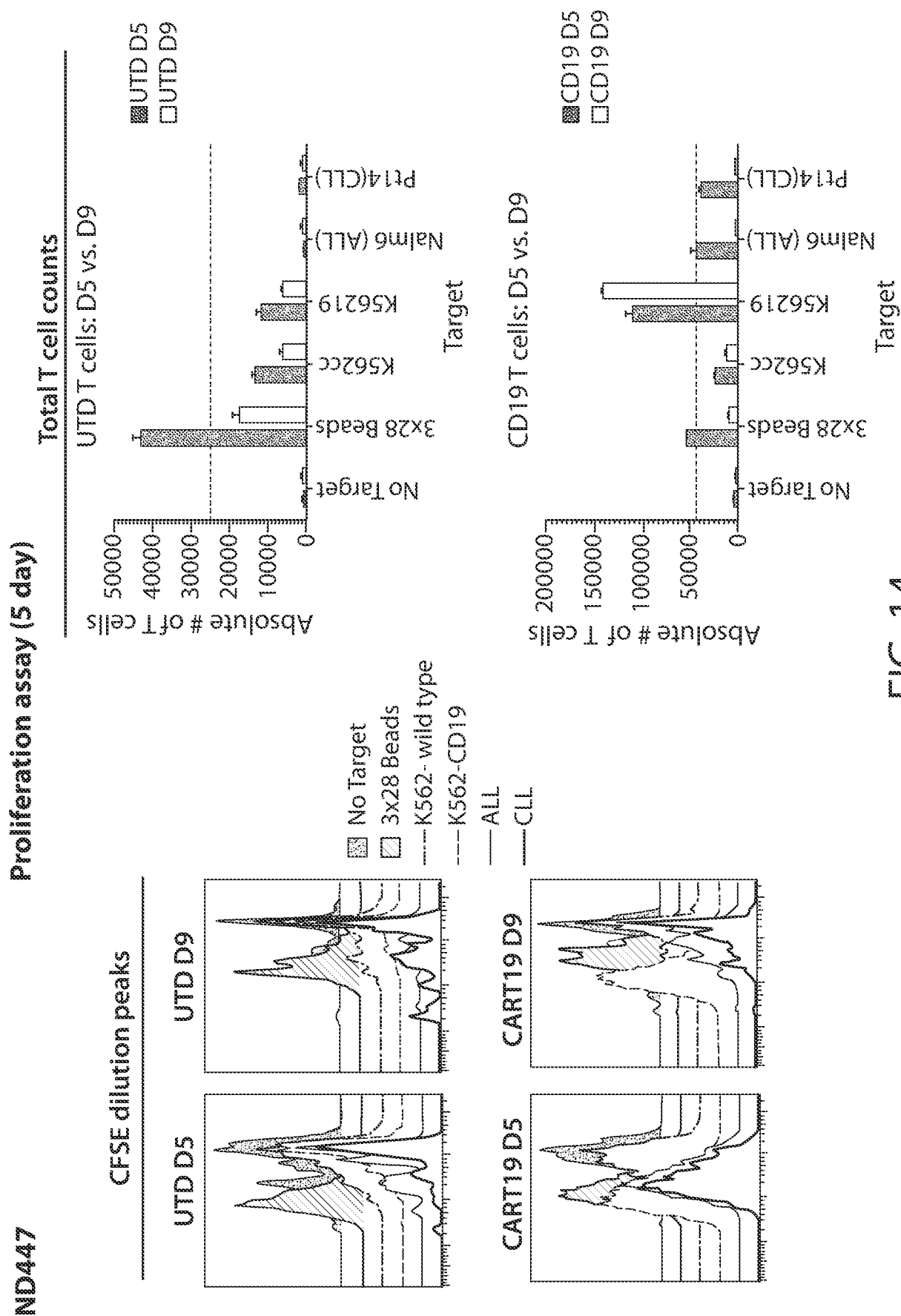


FIG. 14

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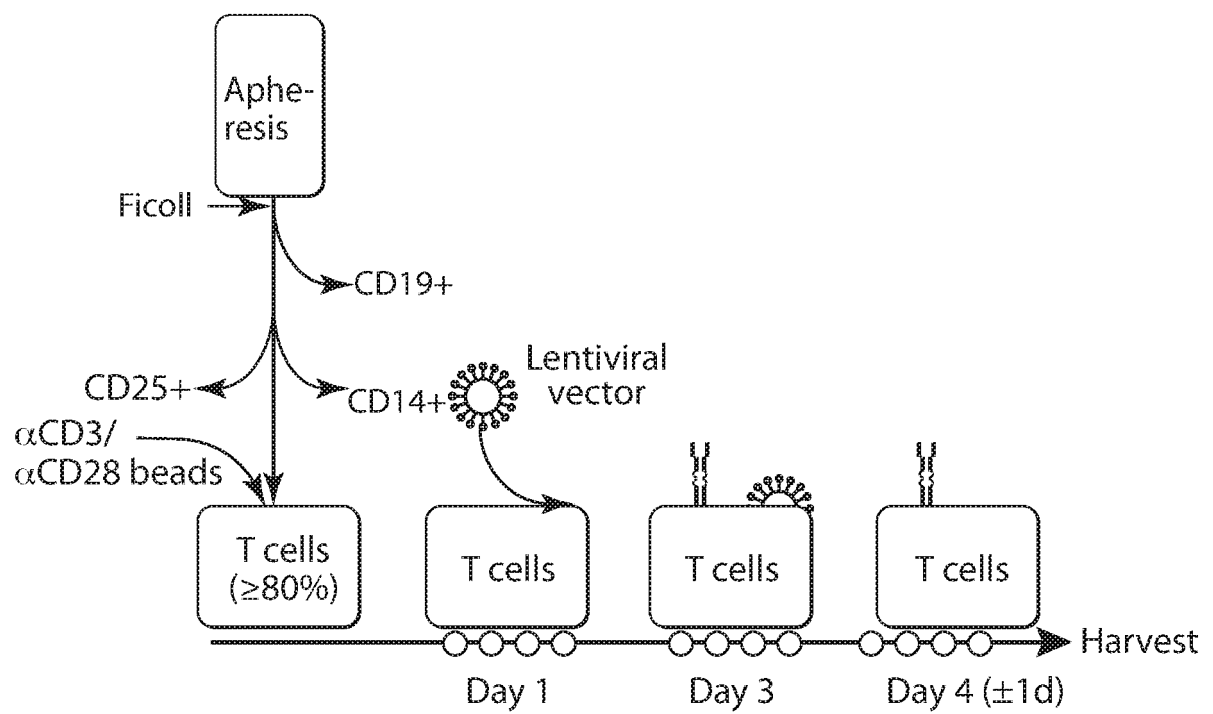


FIG. 15

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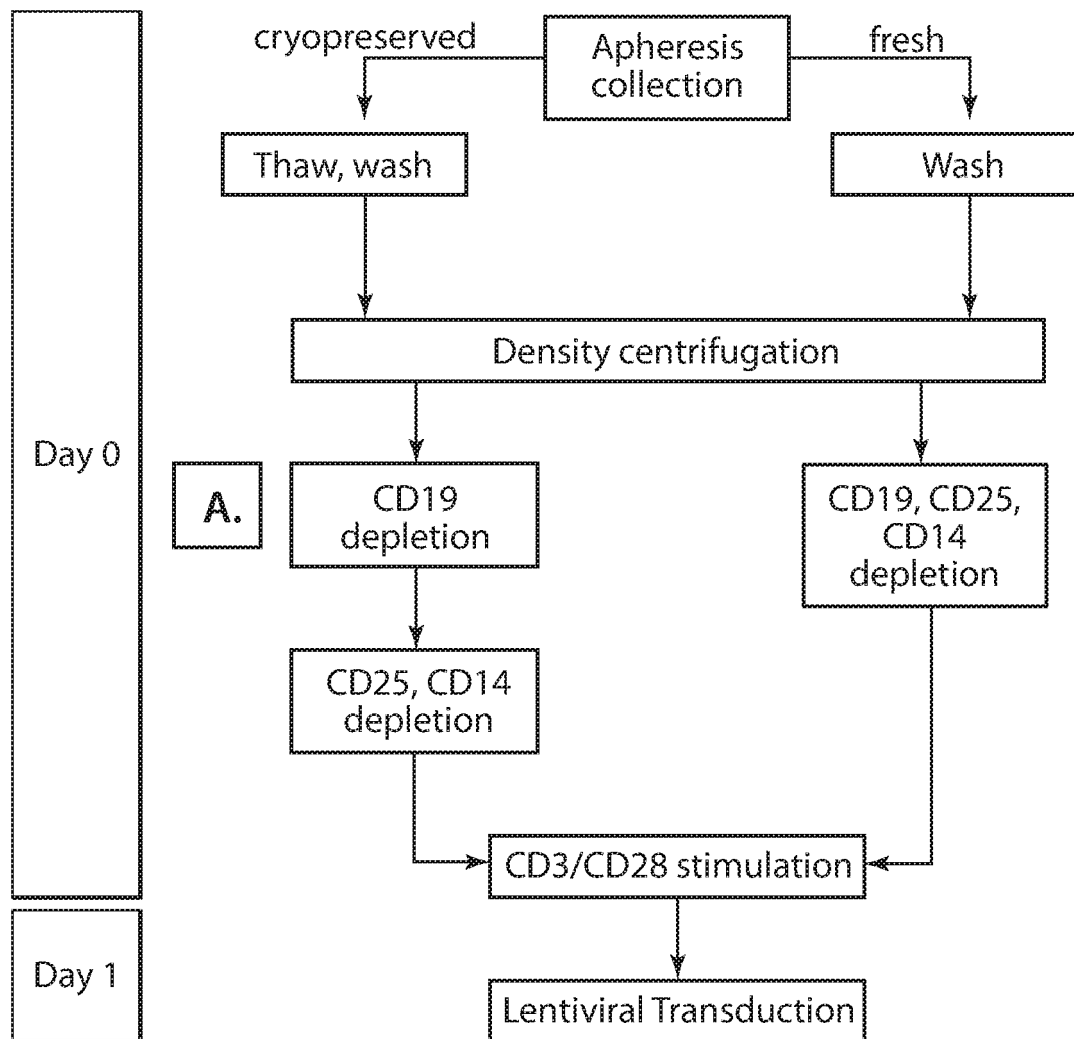


FIG. 16

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Cells harvested on D5 proliferated better than cells harvested on D9 over 7 days of stimulation with K562s expressing CD19.

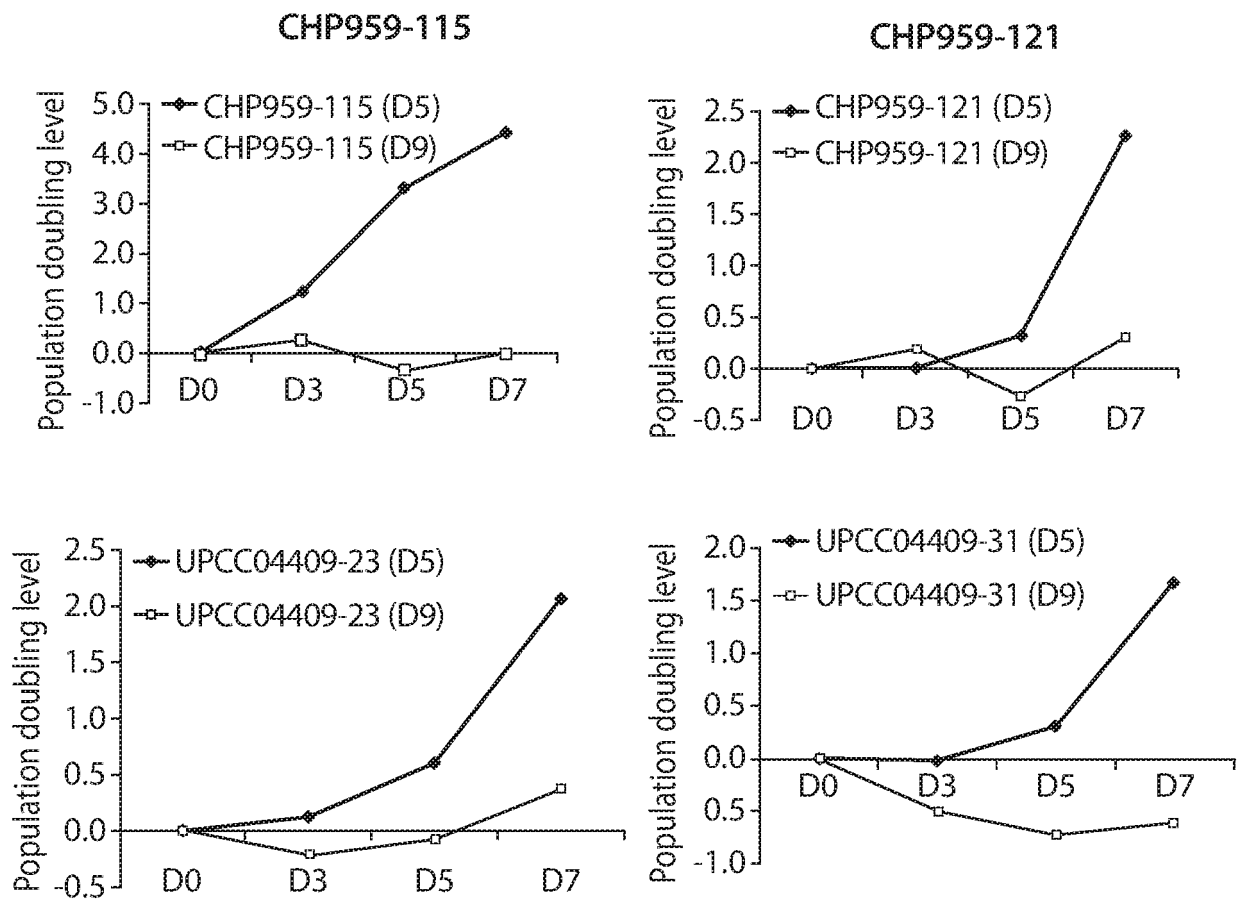


FIG. 17

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**Higher or comparable cytokine production from CART19 cells
harvested at D5 upon recognition of targets**

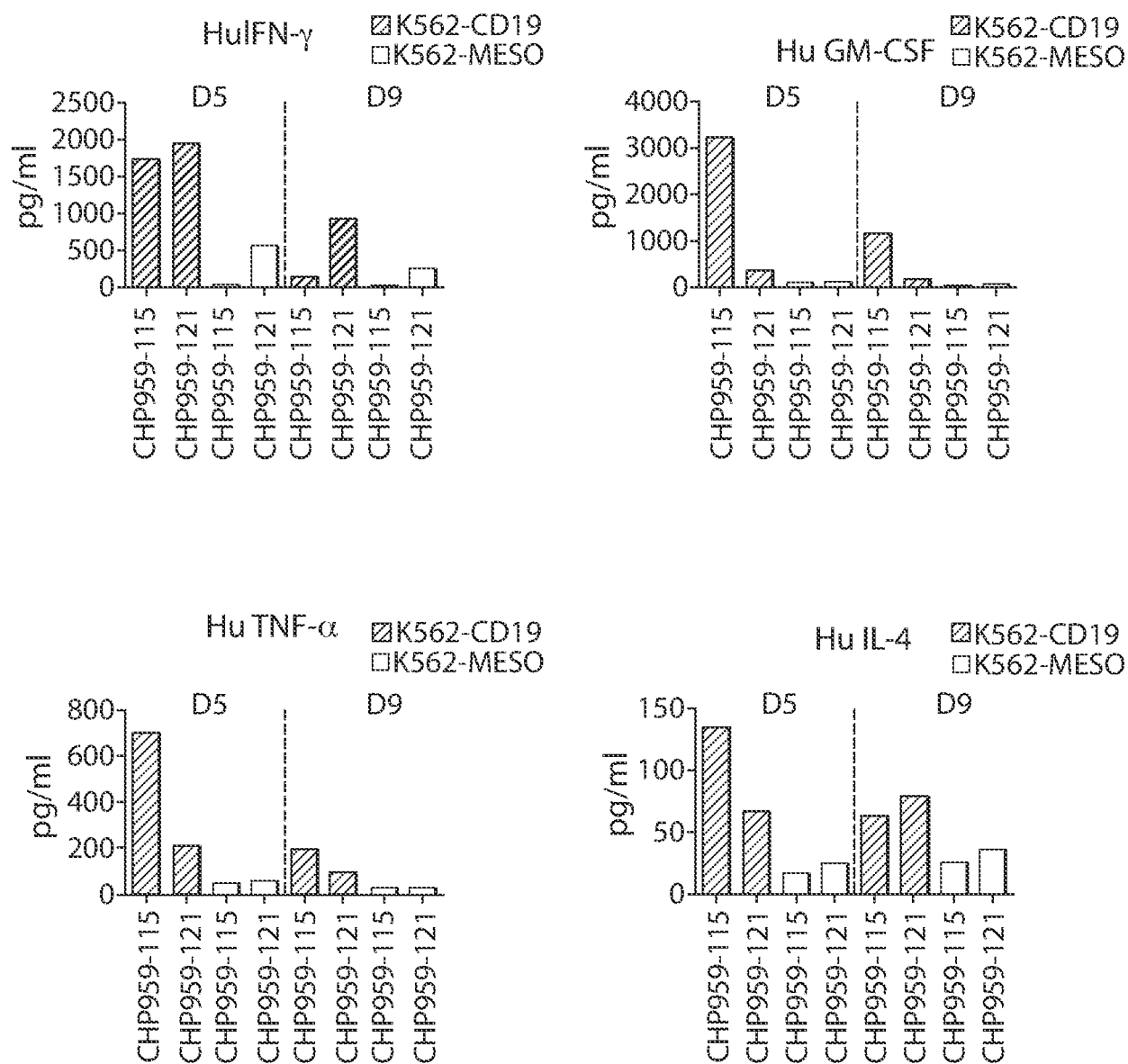
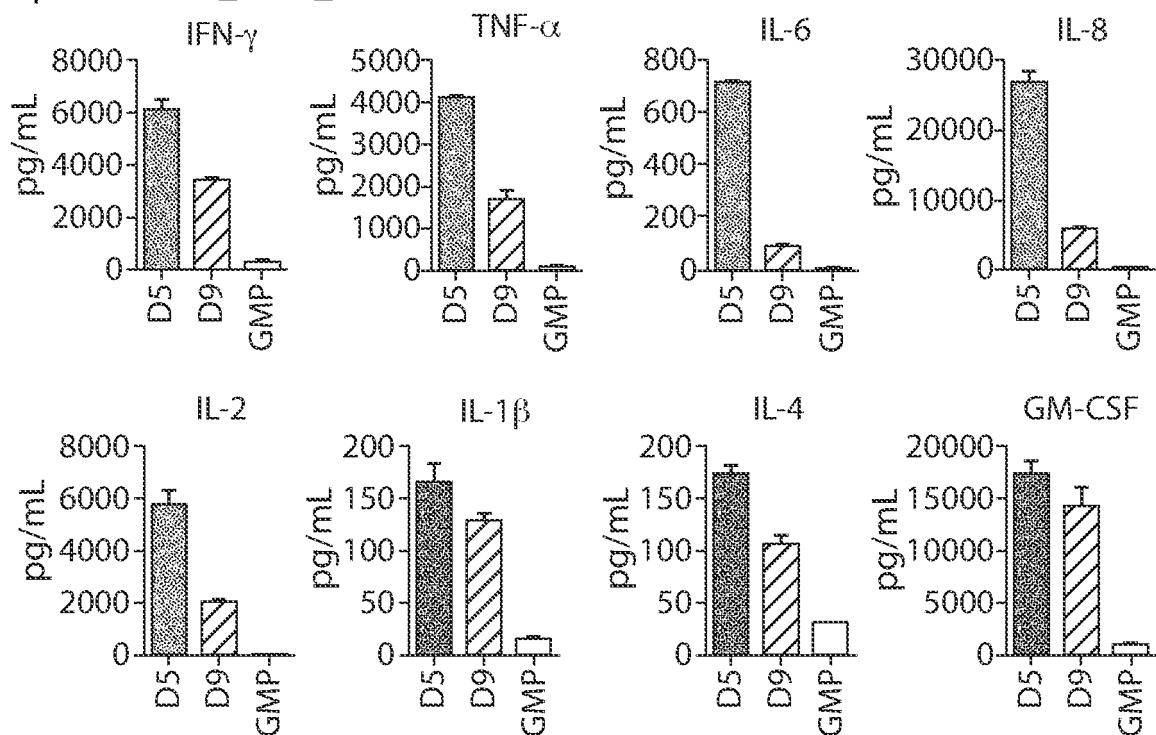


FIG. 18

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Increased levels of multiple cytokines are produced in CART19 cells harvested at day 5 upon recognition of targets

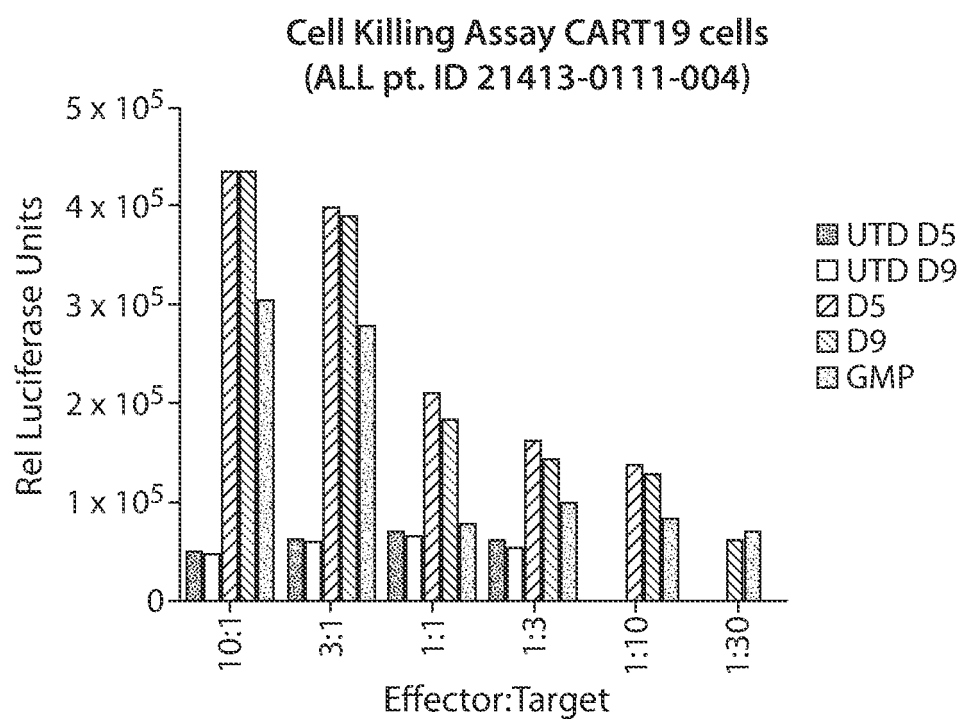
ALL pt. ID 21413_0111_004



- CART19 cells were stimulated with anti-CAR19-idiotype-Ab-coated or control beads for 24h.
- No cytokine or low levels (<200 pg/ml) of cytokine were detected with control beads.

FIG. 19

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CART19 cells harvested at day 5 possess a better cell-killing capacity

- CART19 cells were co-cultured with NALM6-Luc cells at increasing E:T ratios for 16h.
- Total cell lysates were examined by luciferase assay.

FIG. 20

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CART19 cells harvested at day 5 possess a better **in vivo** long-term cell-killing capacity

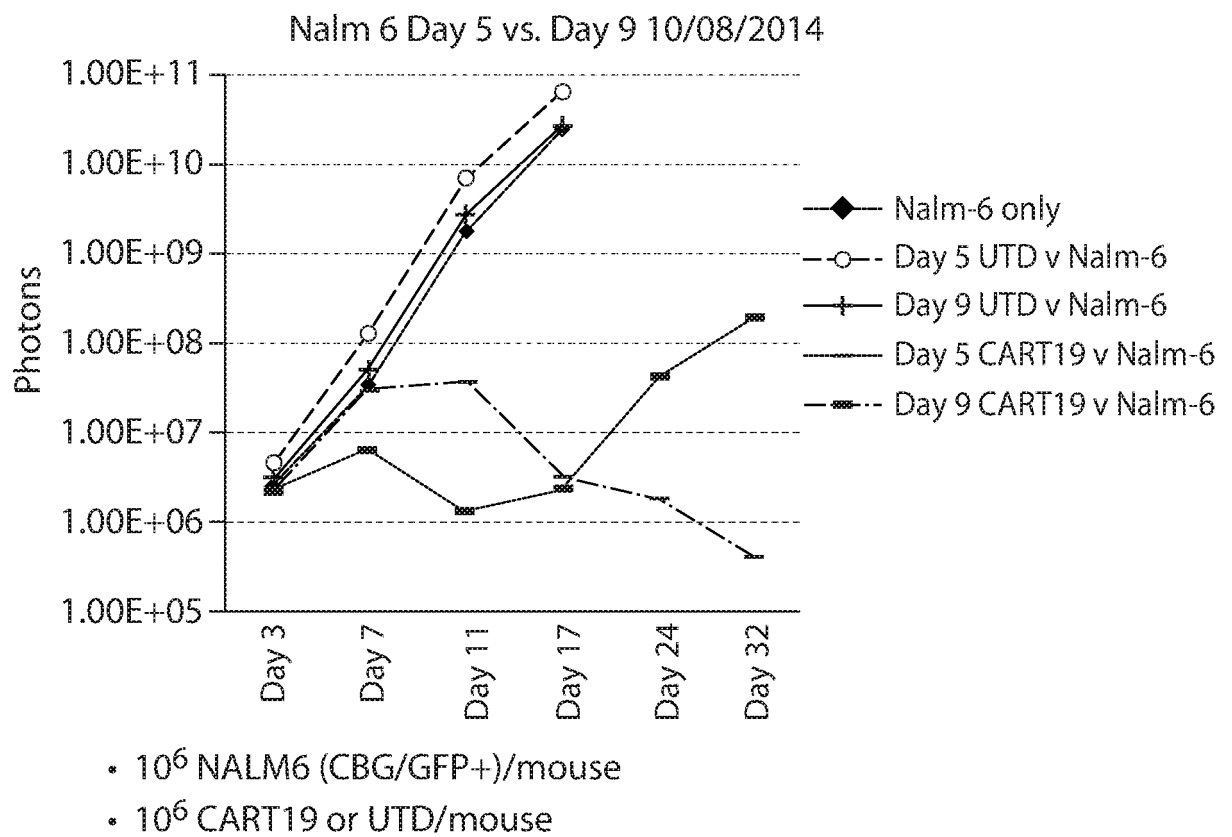


FIG. 21

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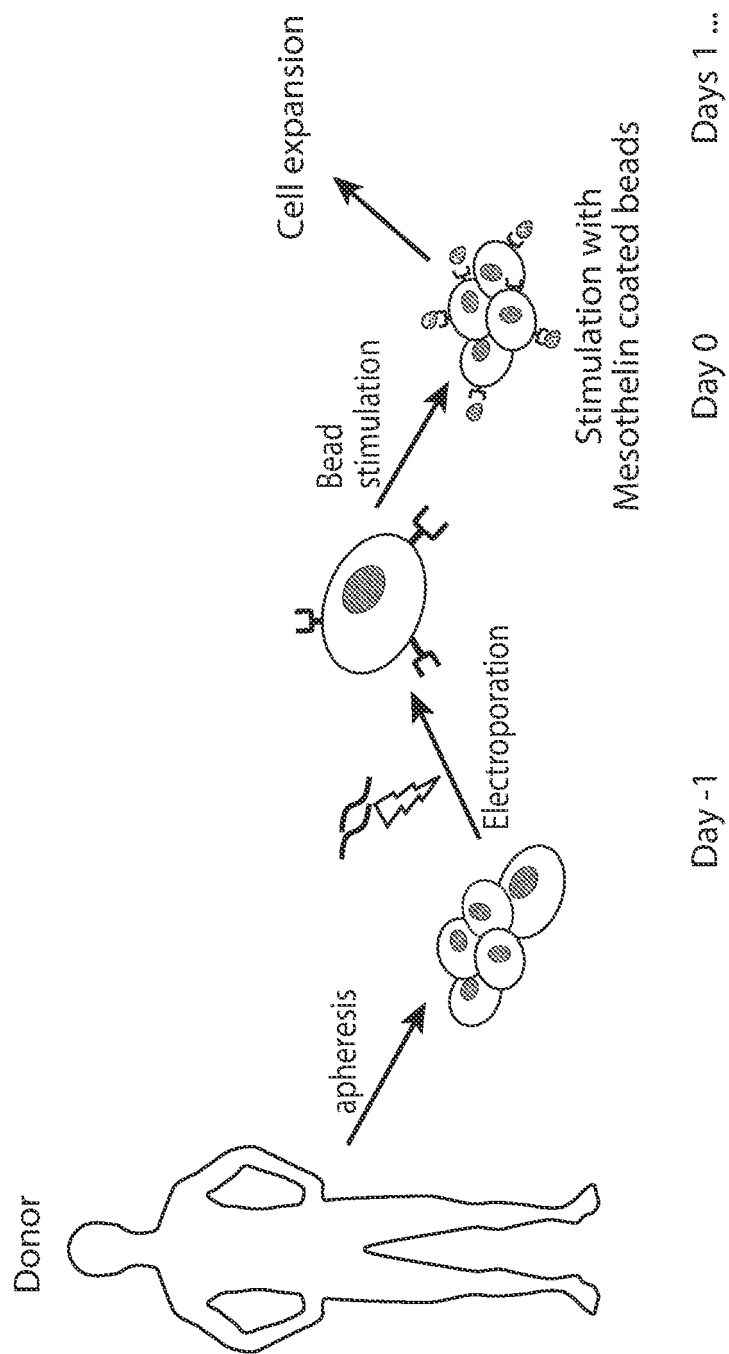


FIG. 22

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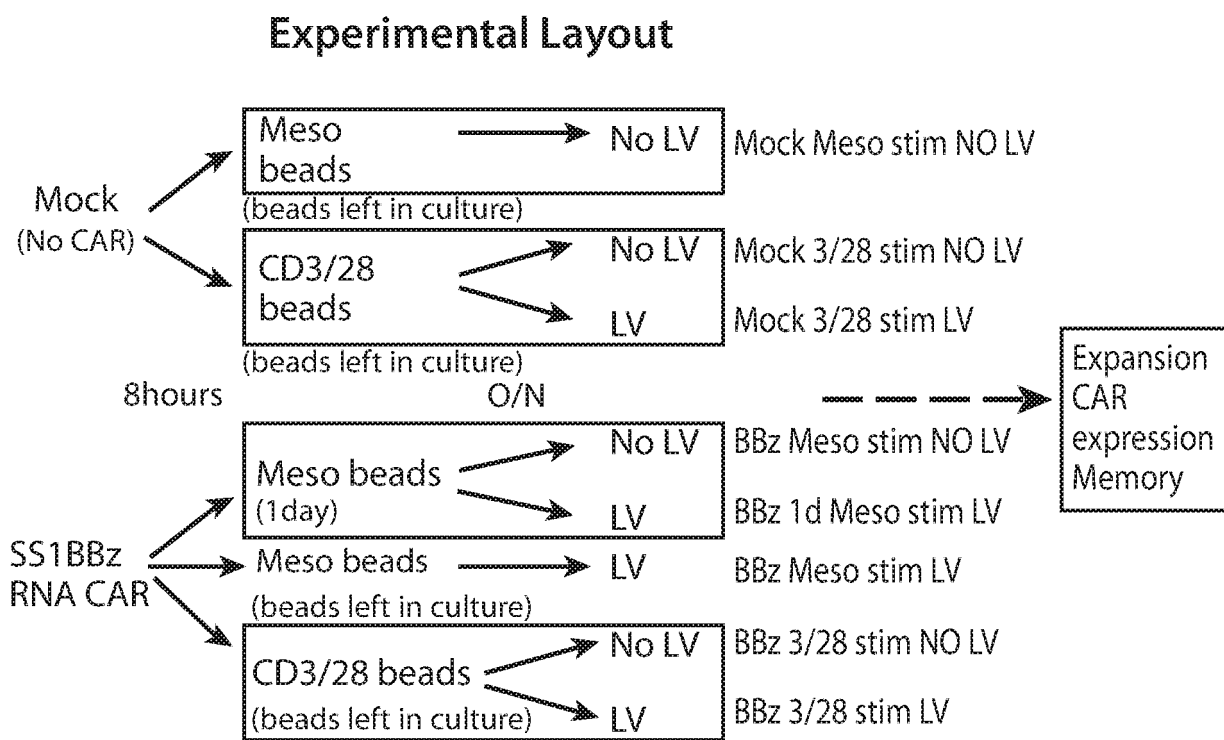


FIG. 23

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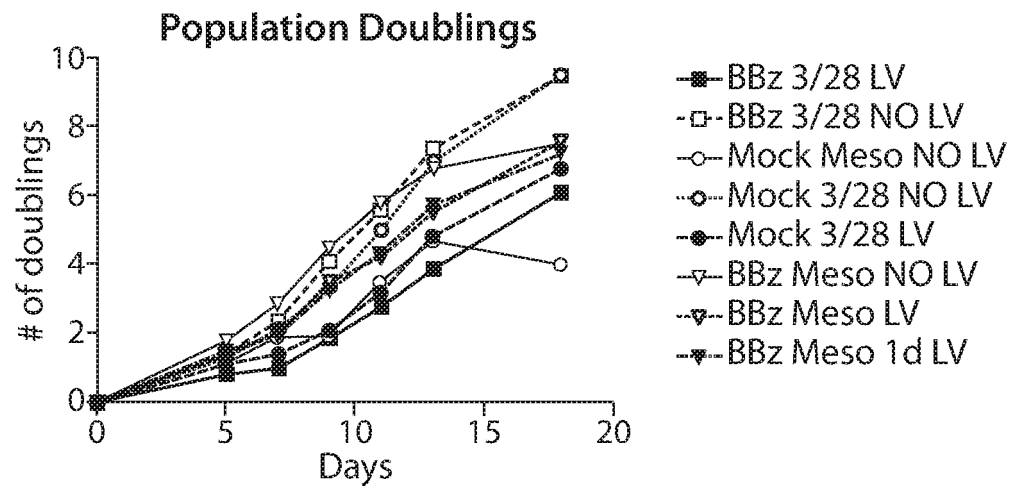


FIG. 24A

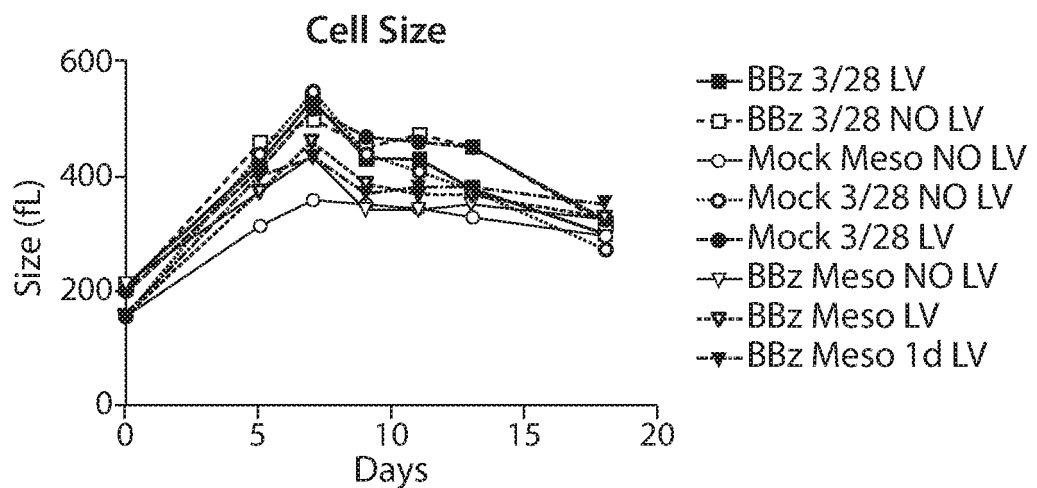
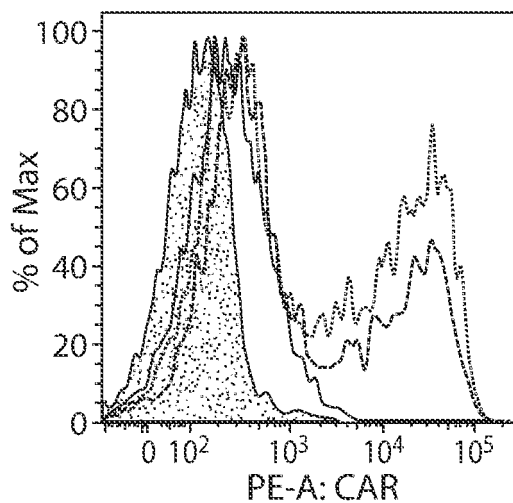
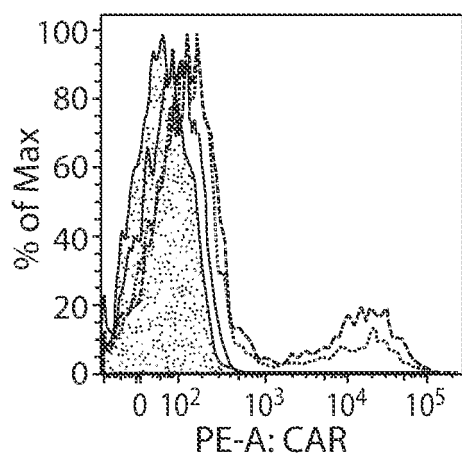


FIG. 24B

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Sample	
---- Day05_Tube_007.fcs	BBz 3/28 stim LV
..... Day05_Tube_003.fcs	Mock 3/28 stim LV
— Day05_Tube_008.fcs	BBz 3/28 stim NO LV
■ Day05_Tube_002.fcs	Mock 3/28 stim NO LV



Sample	
---- Day05_Tube_006.fcs	BBz 1d Meso stim LV
..... Day05_Tube_005.fcs	BBz Meso stim LV
— Day05_Tube_004.fcs	BBz Meso stim NO LV
■ Day05_Tube_001.fcs	Mock Meso stim NO LV

FIG. 25A

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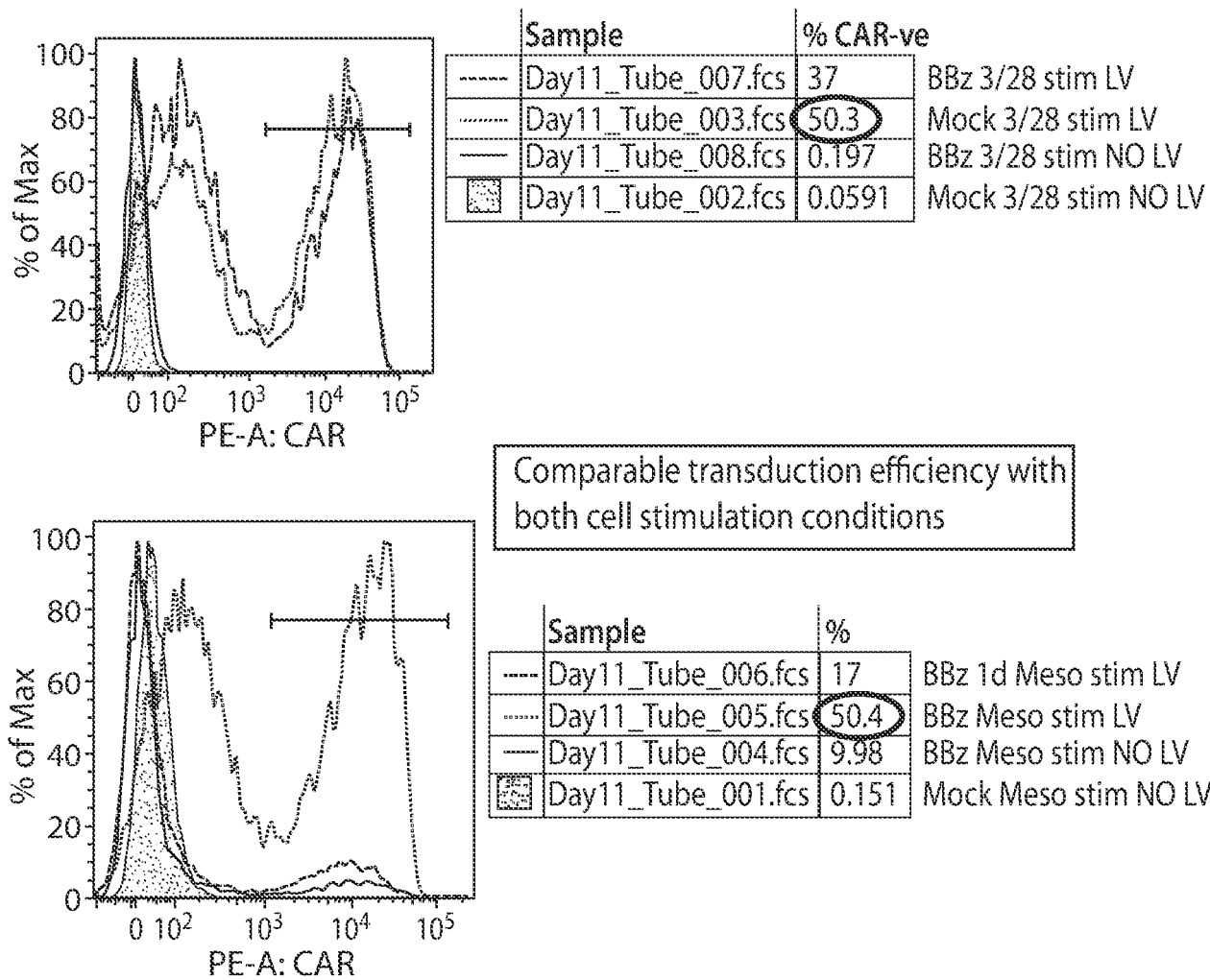


FIG. 25B

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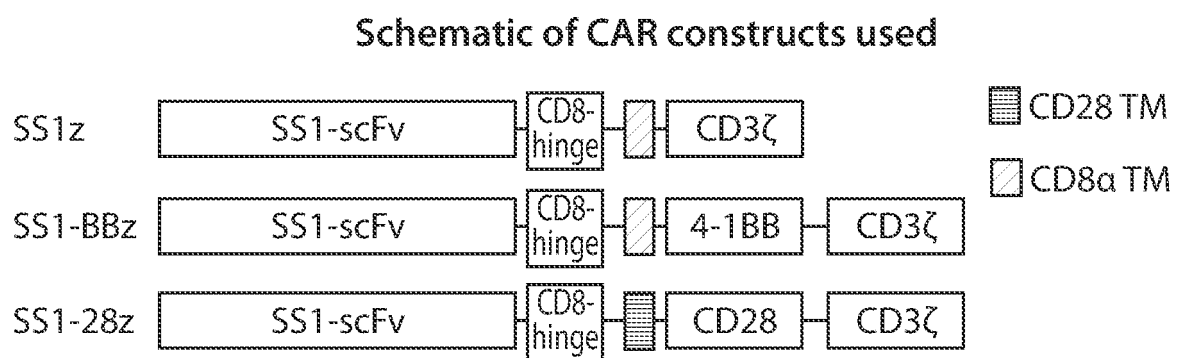


FIG. 26A

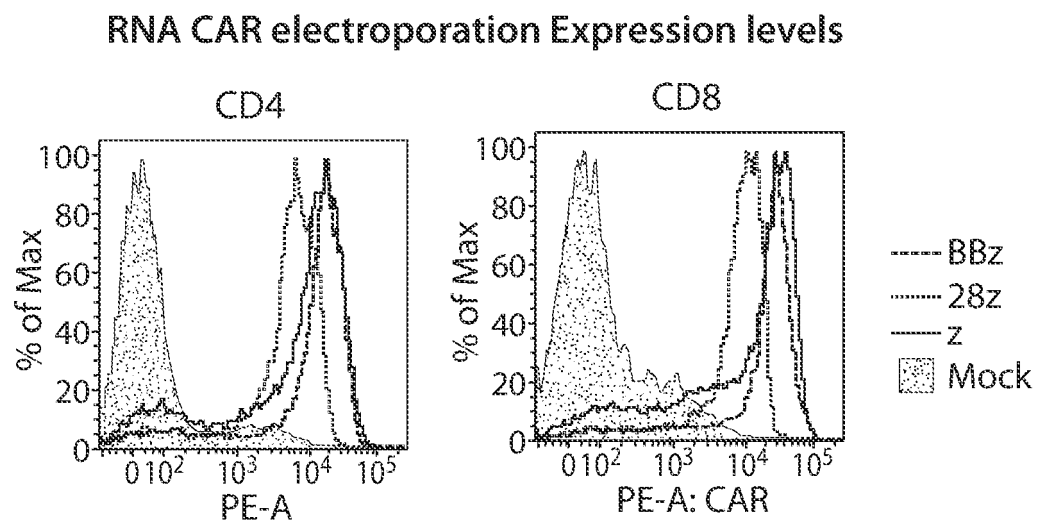


FIG. 26B

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Expansion of CAR-grafted peripheral blood T cells
CD8 T cells (peripheral blood)

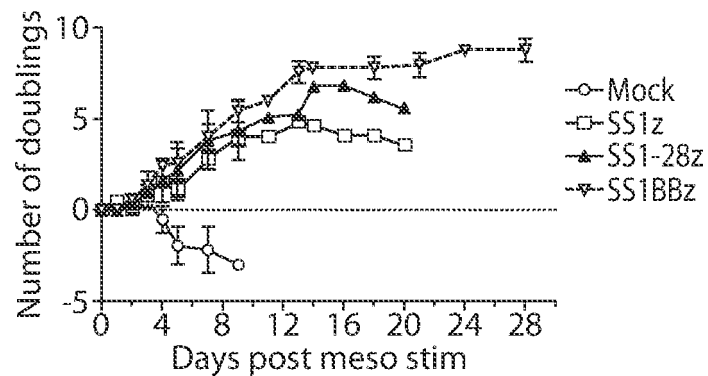


FIG. 27A

Expansion of CAR-grafted peripheral blood T cells

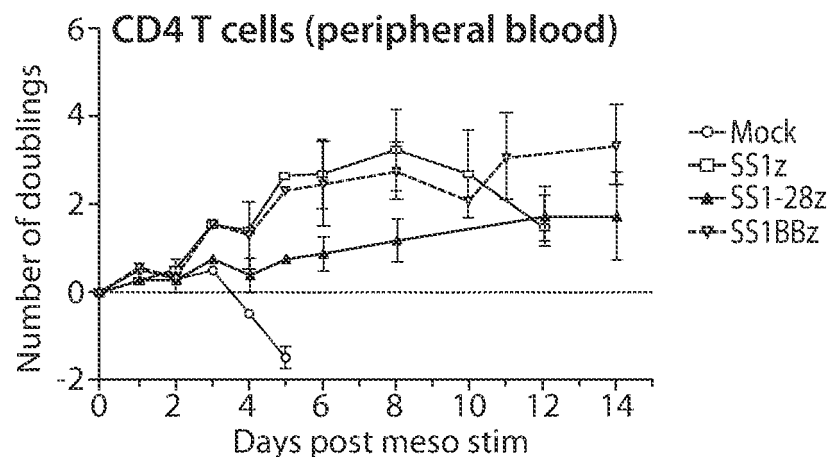


FIG. 27B

Expansion of CAR-grafted cord blood T cells

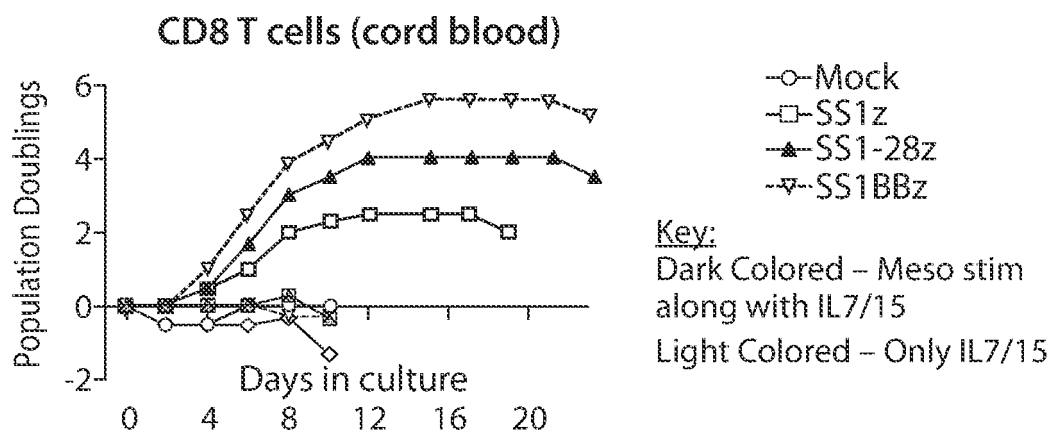


FIG. 27C

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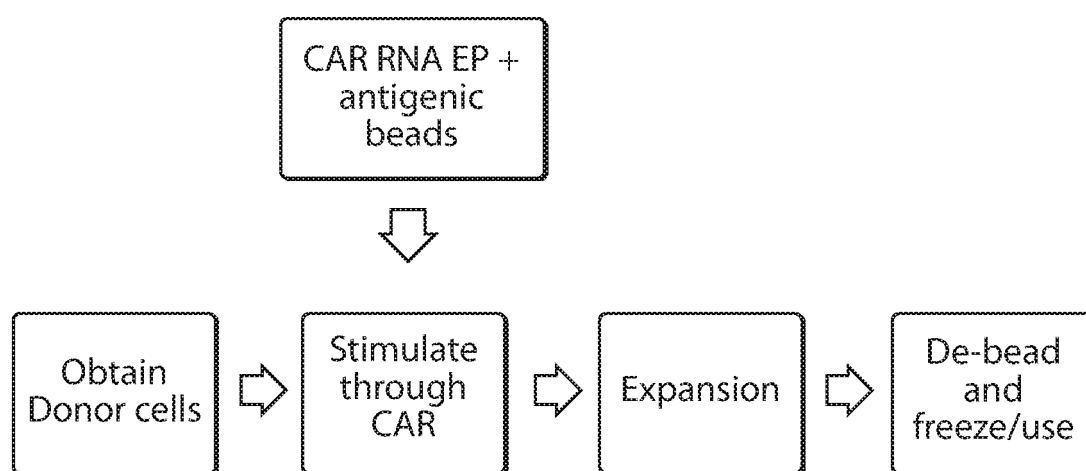


FIG. 28

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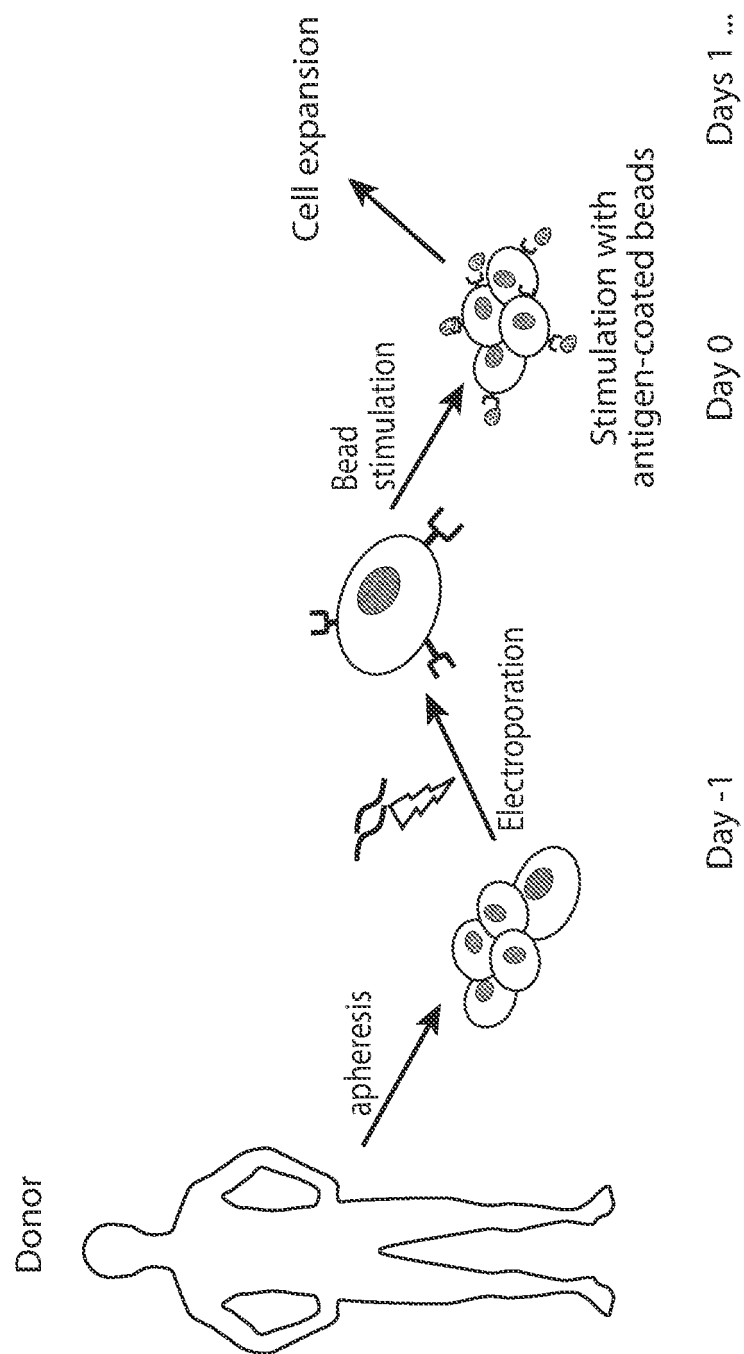
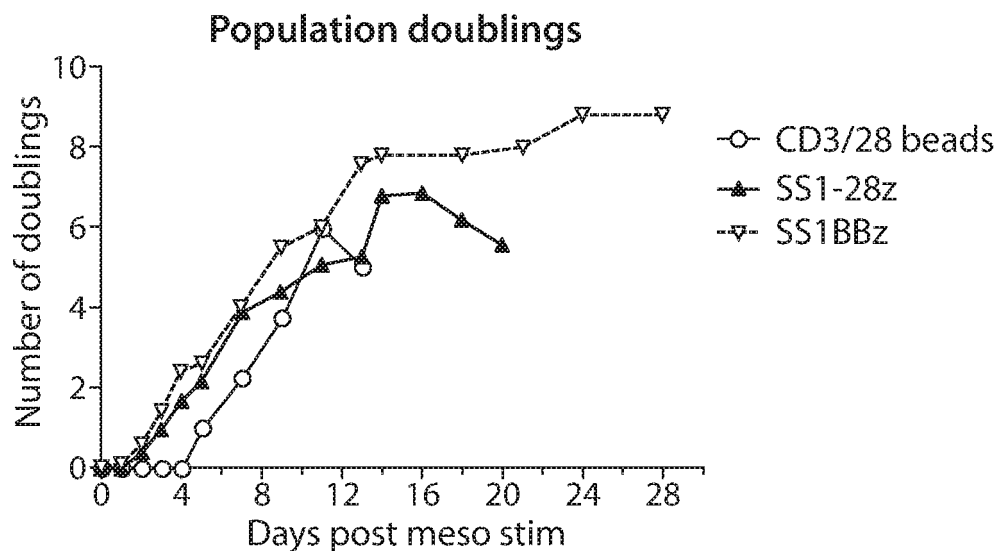
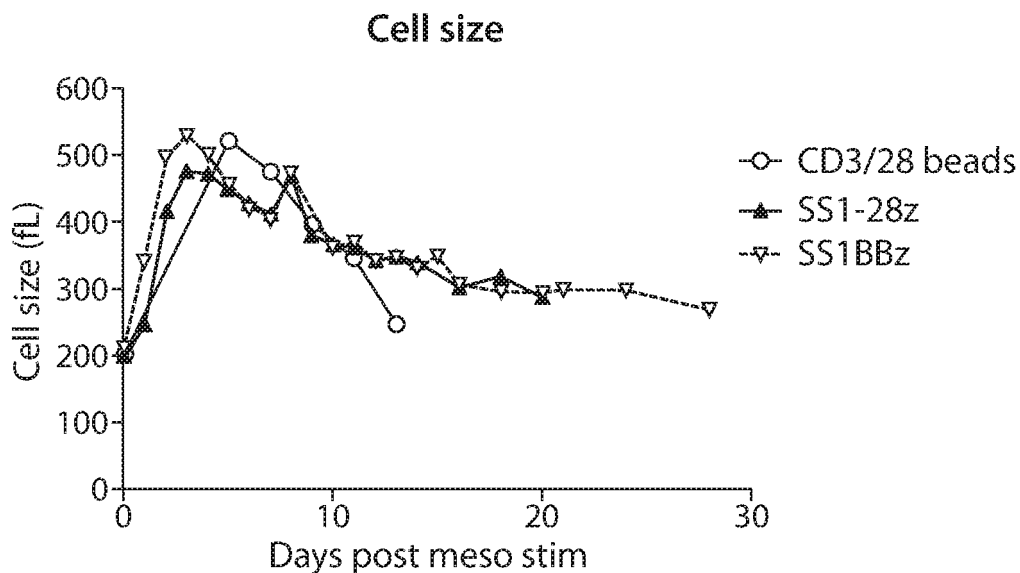


FIG. 29

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**FIG. 30A****FIG. 30B**

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Expansion of CAR-grafted peripheral blood T cells

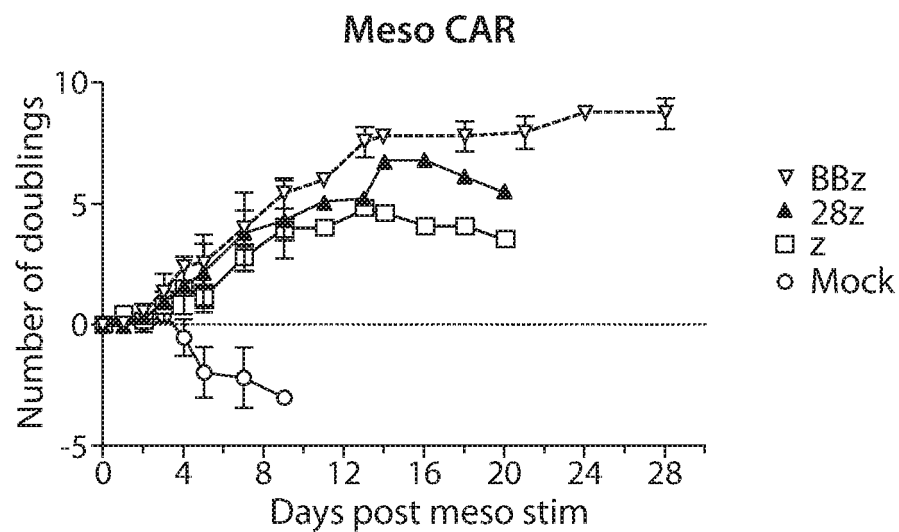


FIG. 31A

Expansion of CAR-grafted peripheral blood T cells

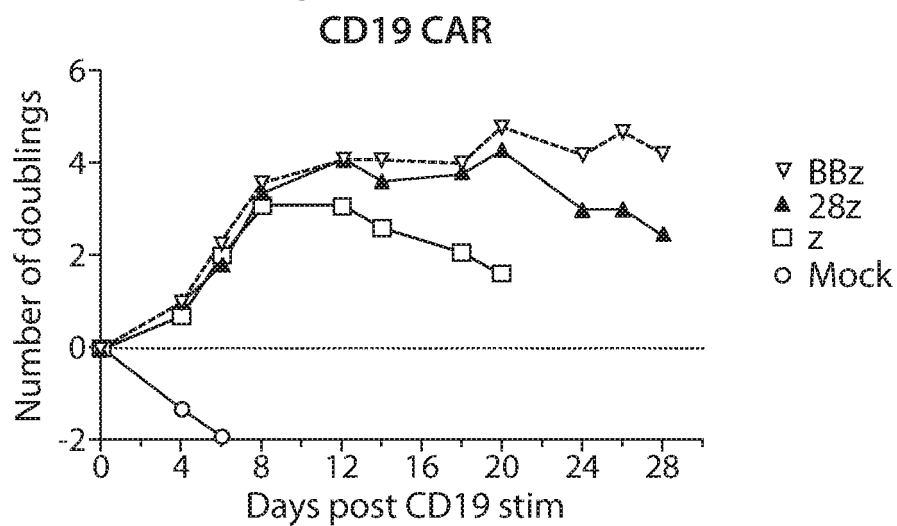


FIG. 31B

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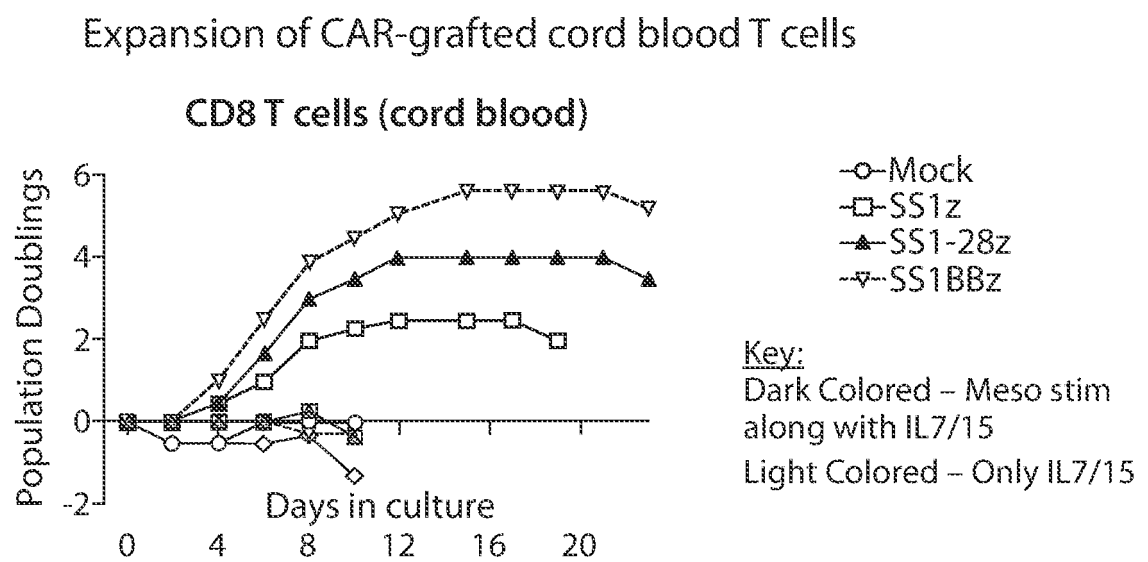


FIG. 31C

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Schematic of CAR constructs used

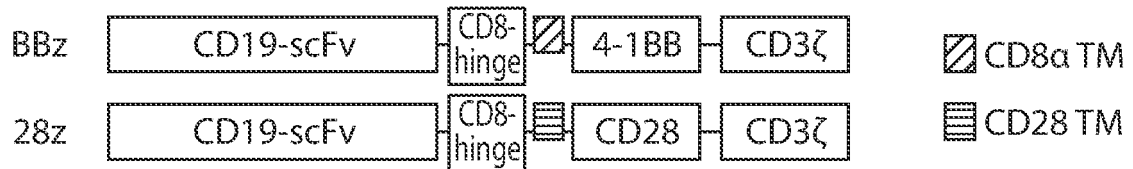


FIG. 32A

CAR Expression levels

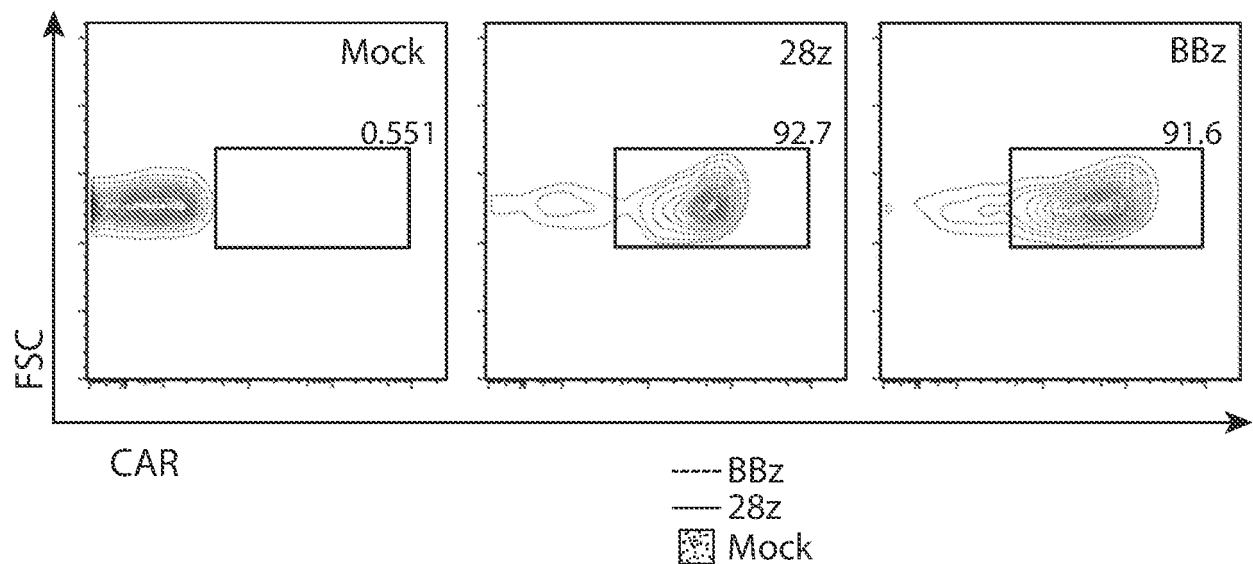
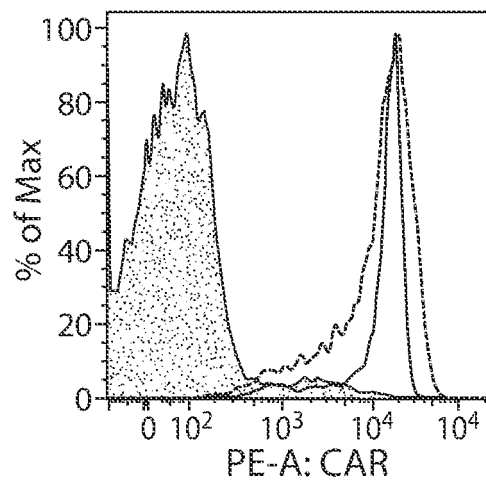


FIG. 32B

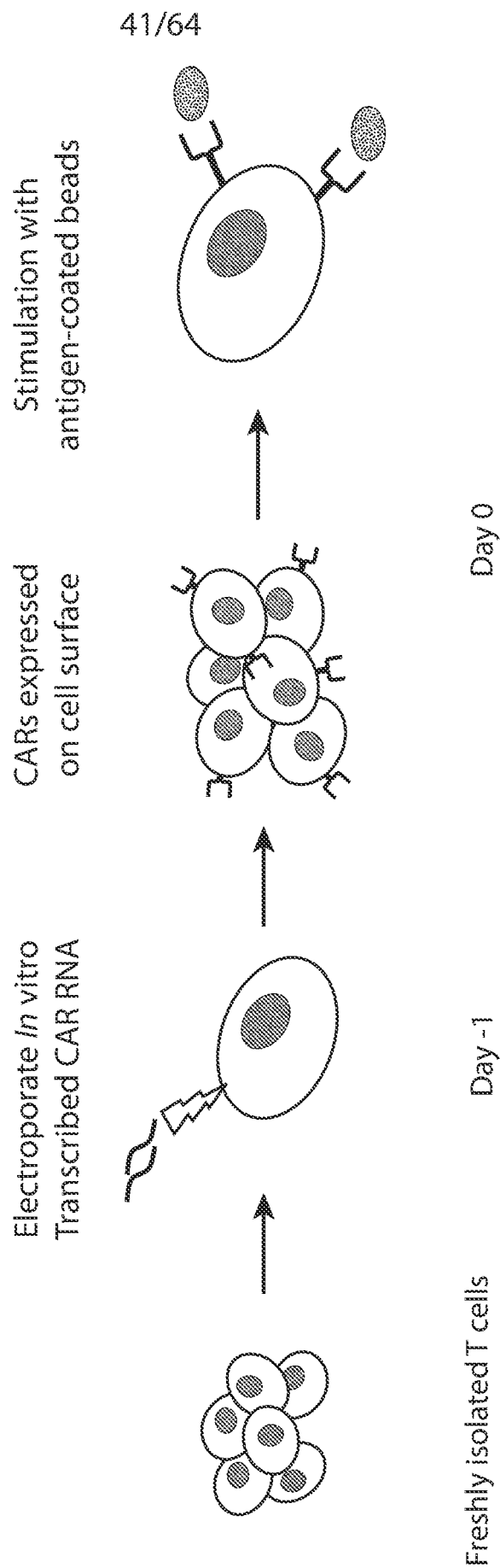


FIG. 32C

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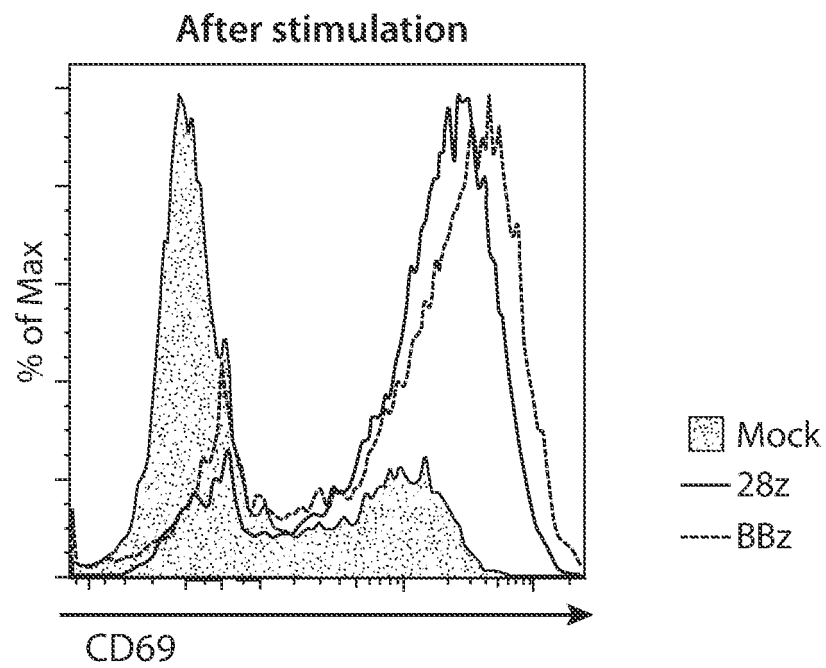


FIG. 33A

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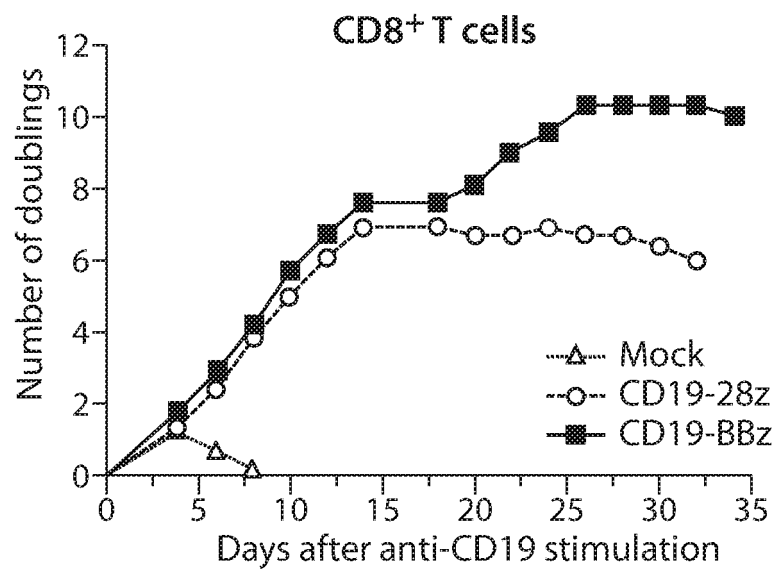
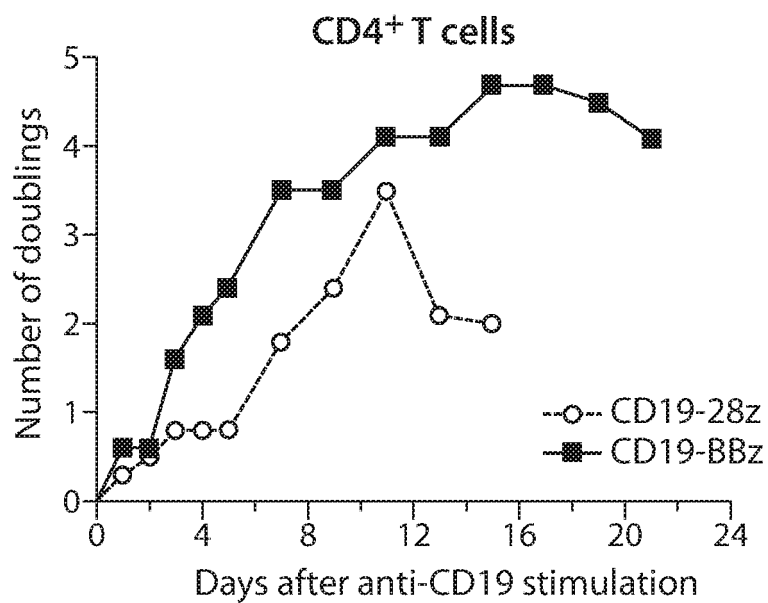


FIG. 33B

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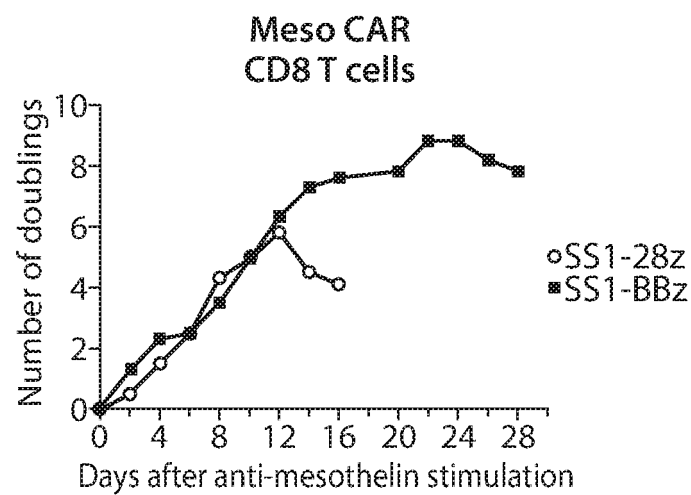
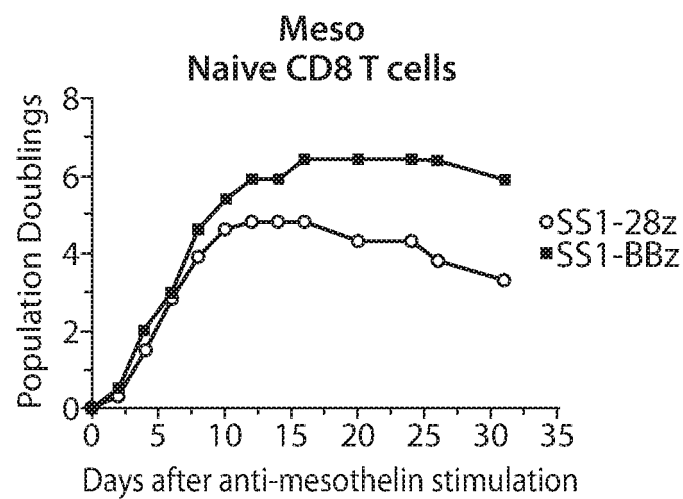


FIG. 33C

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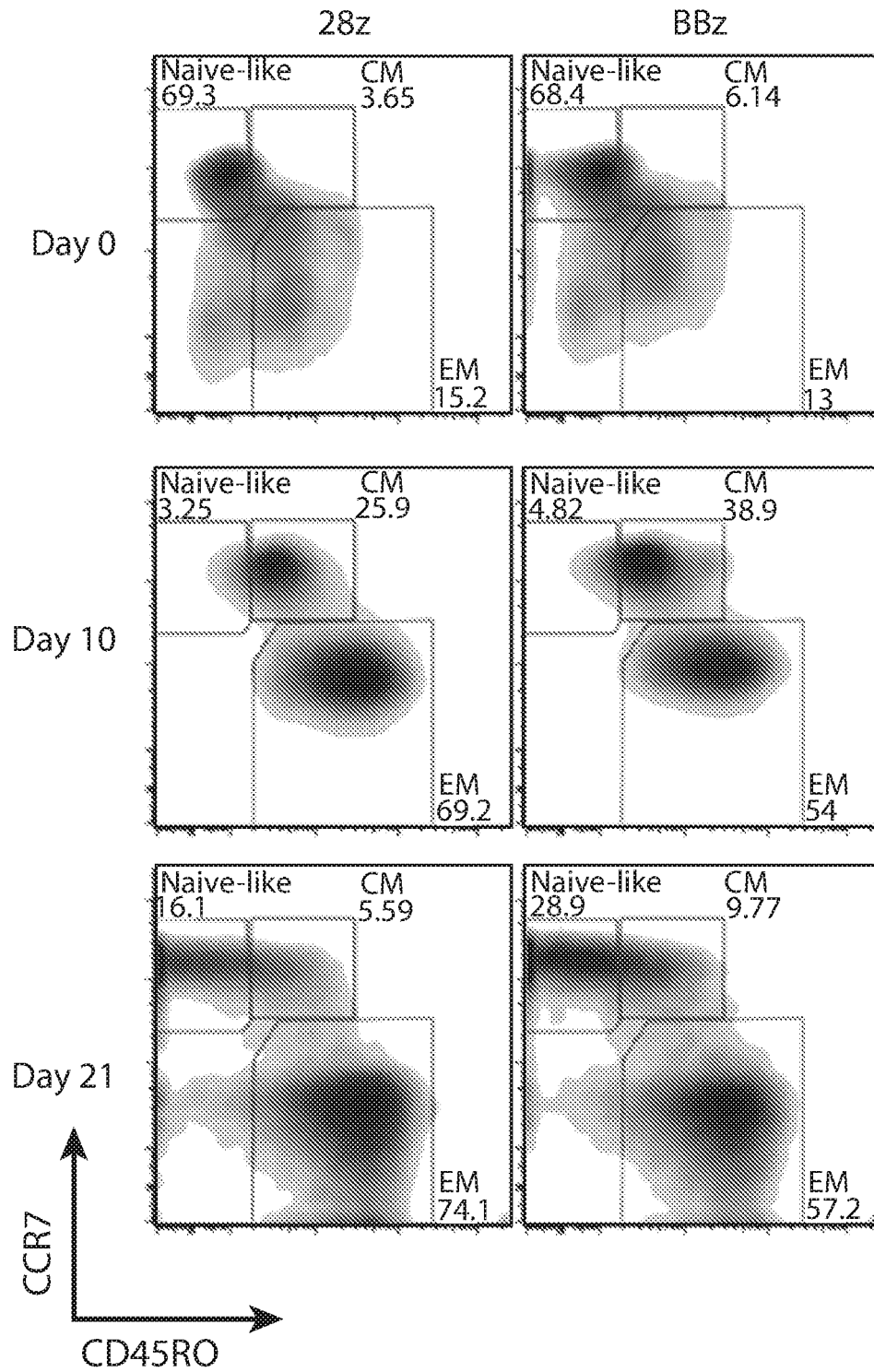


FIG. 33D

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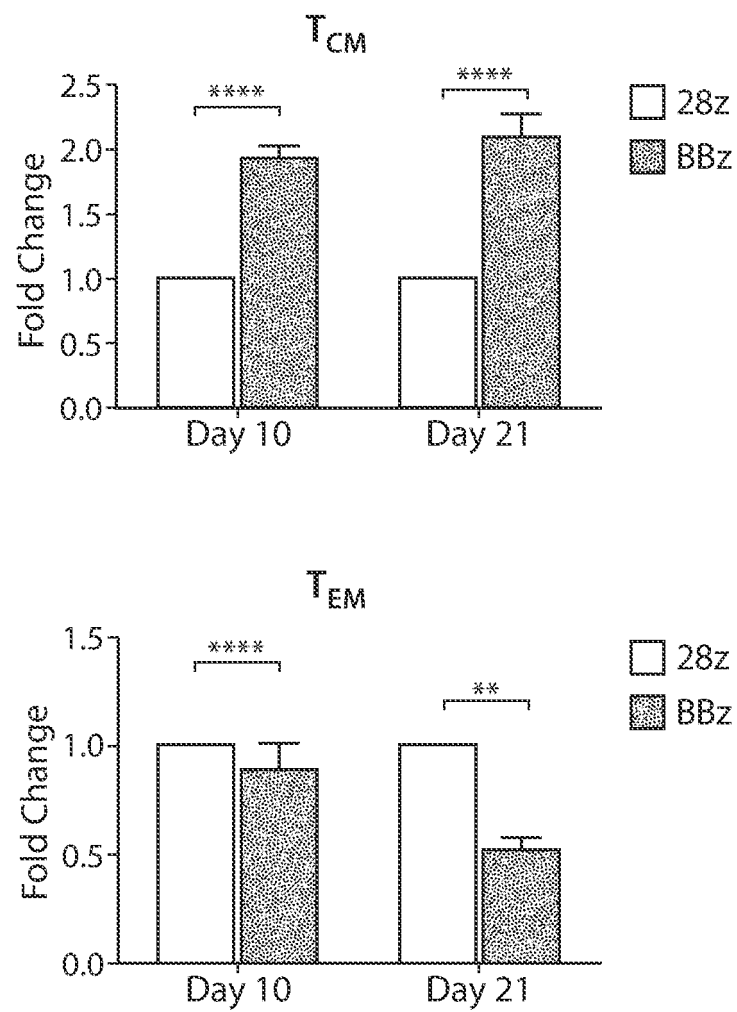


FIG. 33E

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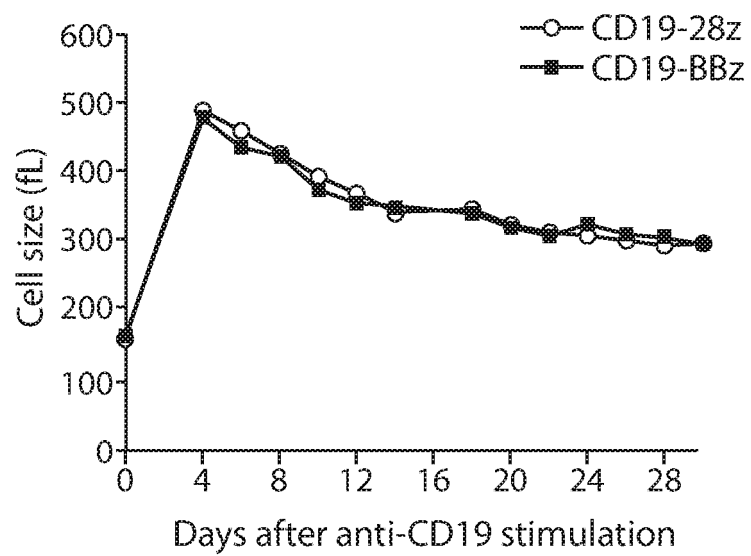


FIG. 34A

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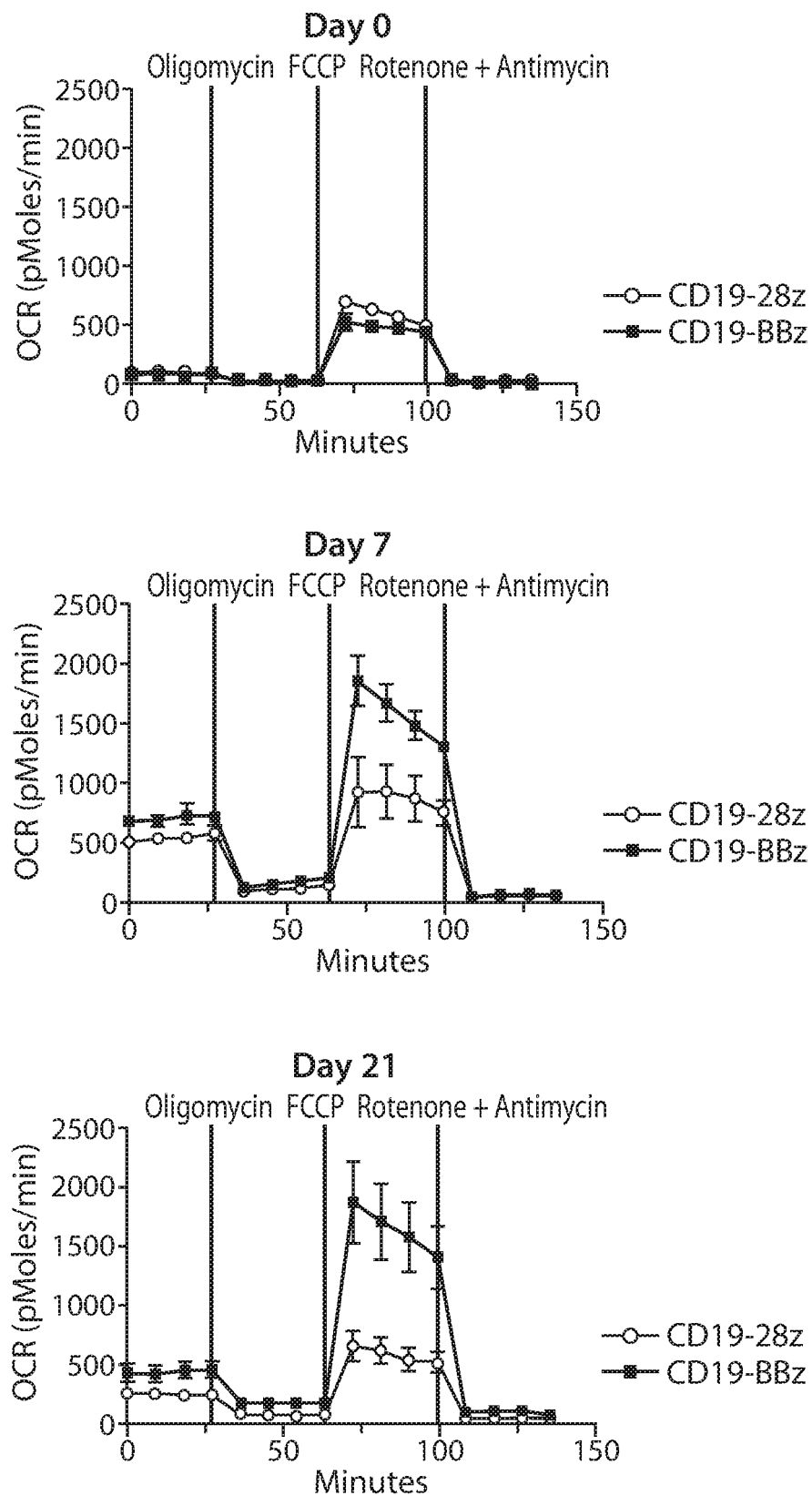


FIG. 34B

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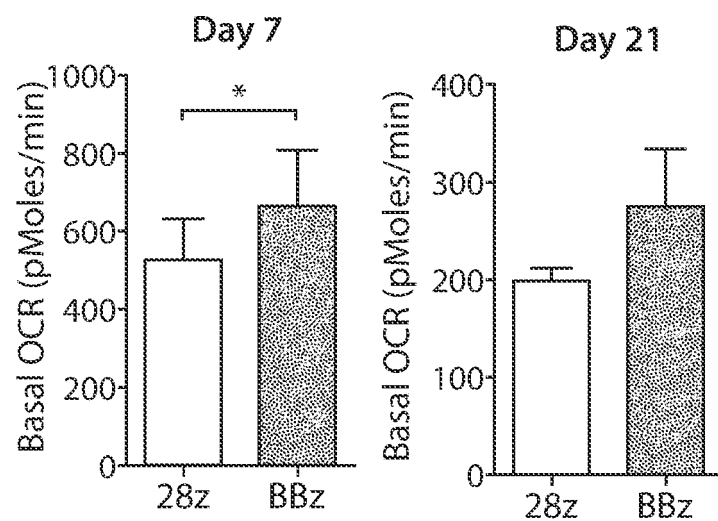


FIG. 34C

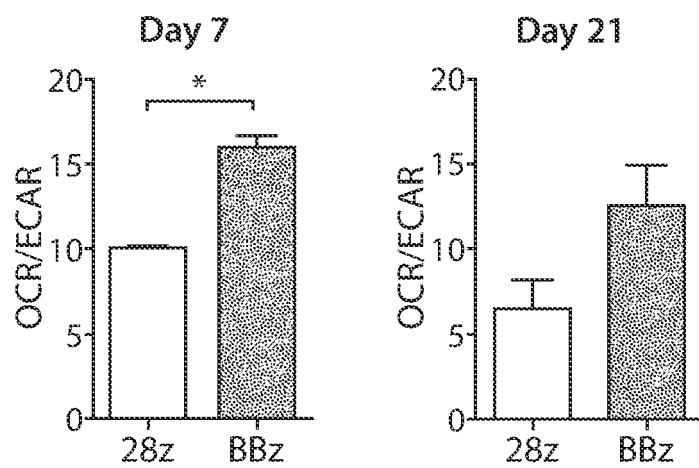


FIG. 34D

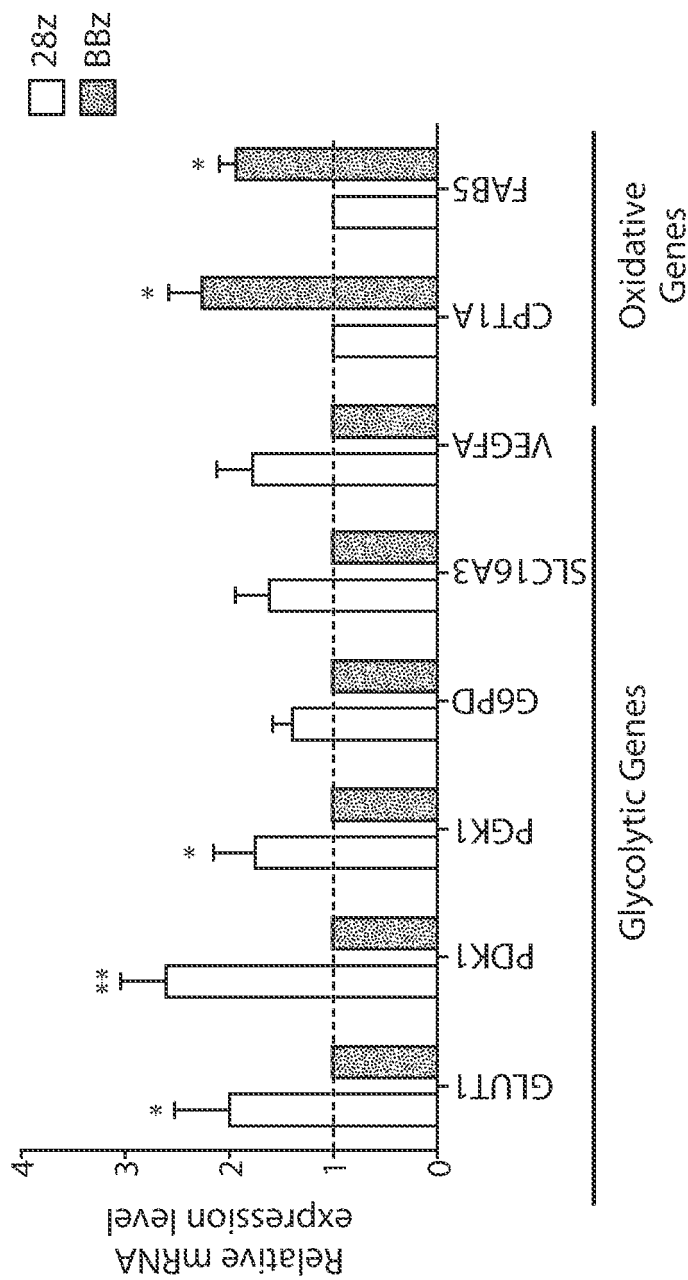


FIG. 34E

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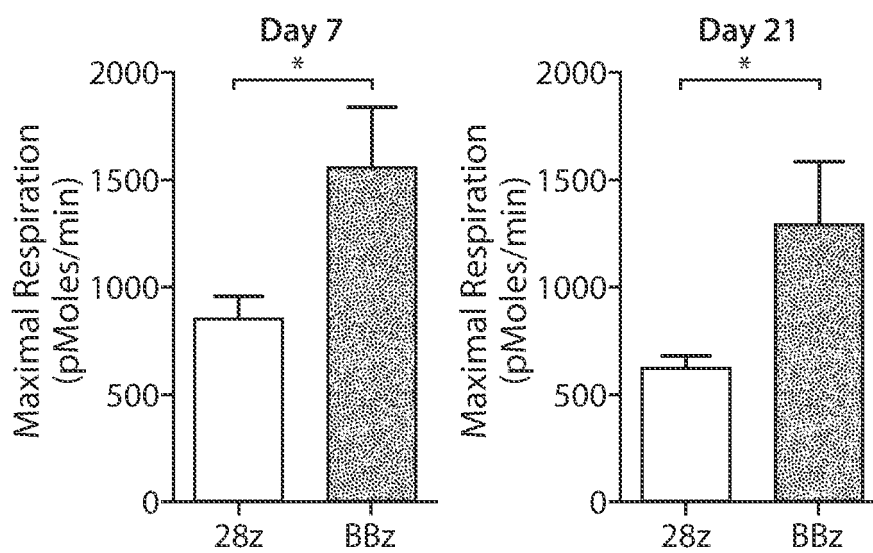


FIG. 34F

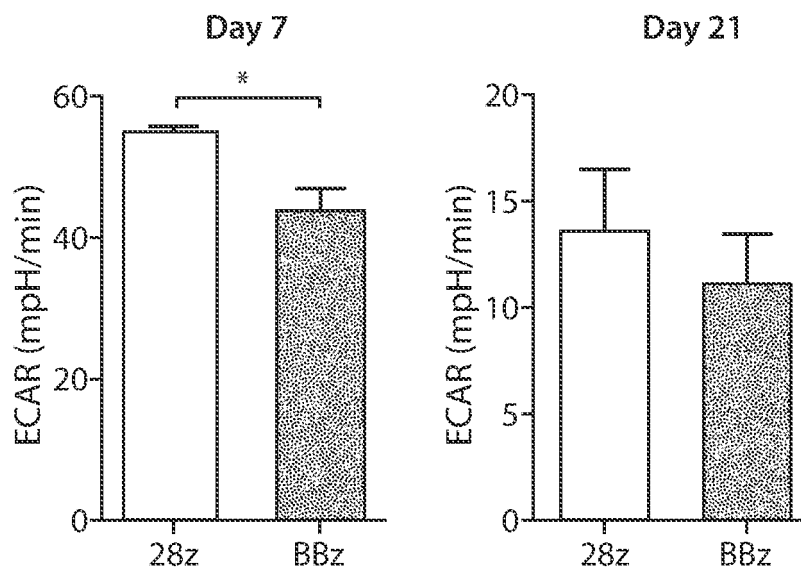


FIG. 34G

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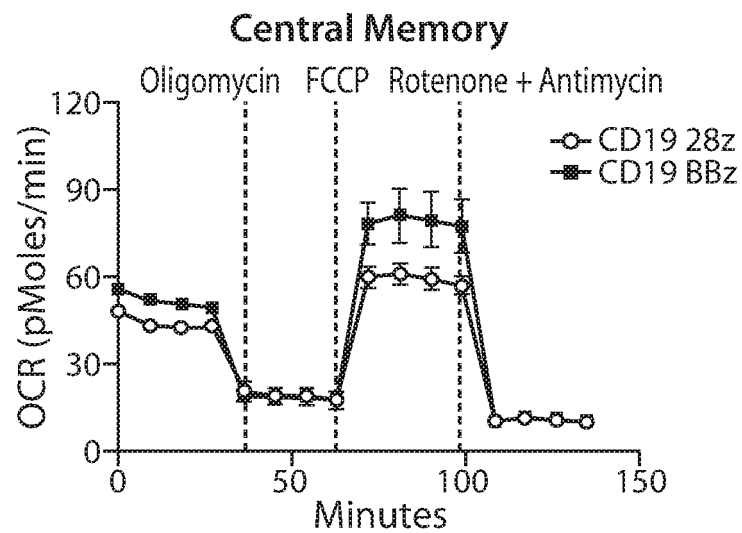


FIG. 34H

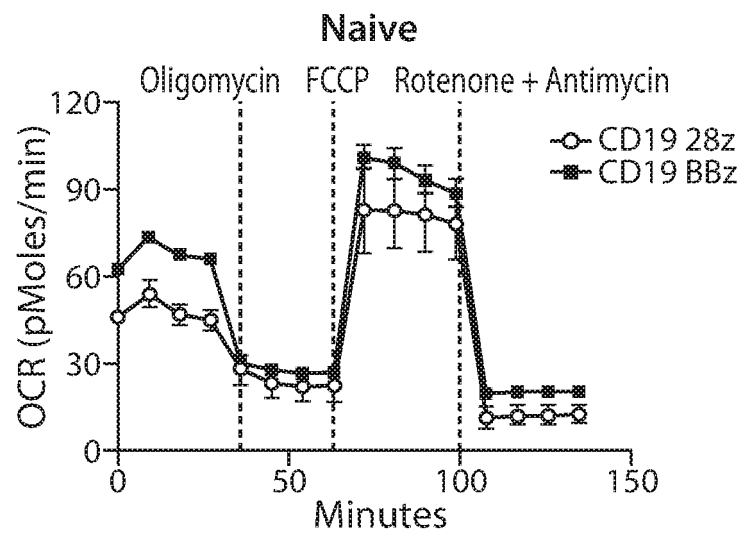


FIG. 34I

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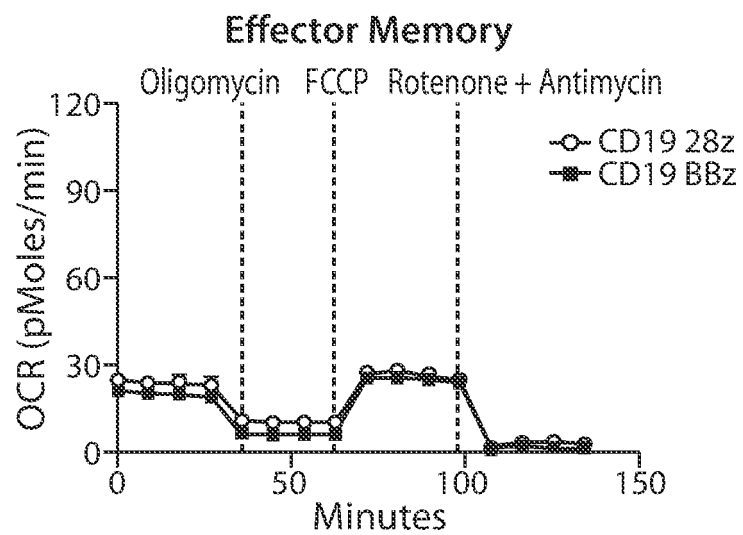


FIG. 34J

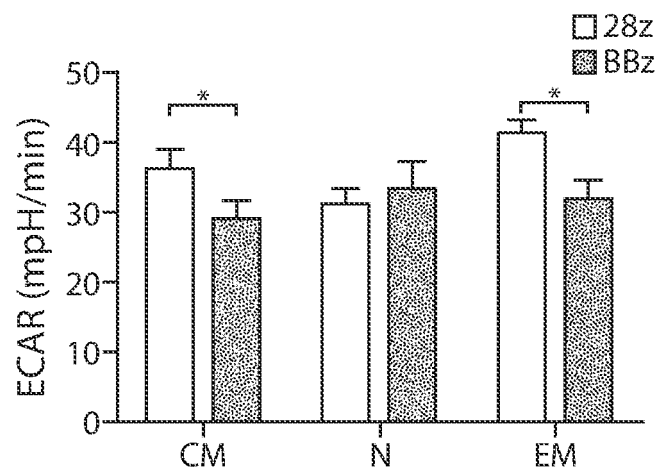


FIG. 34K

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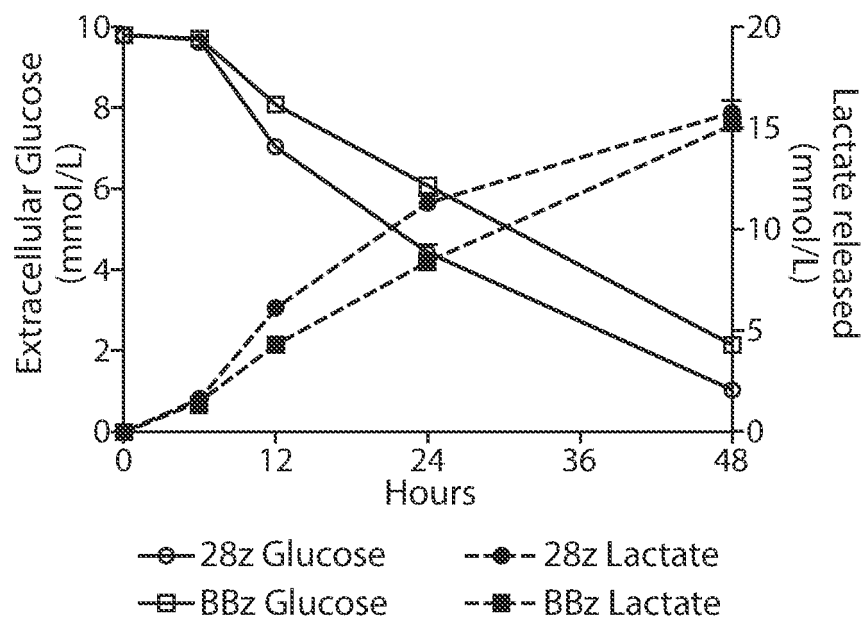


FIG. 34L

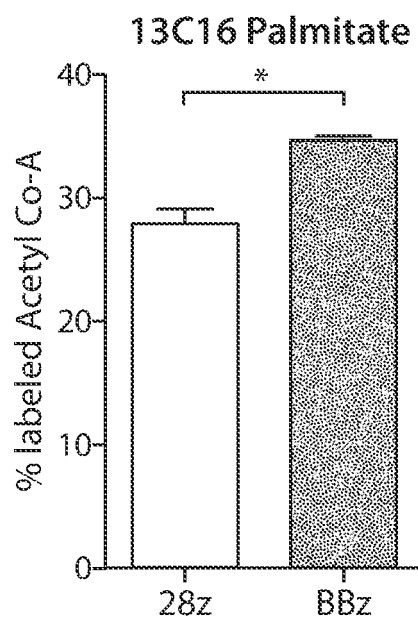


FIG. 34M

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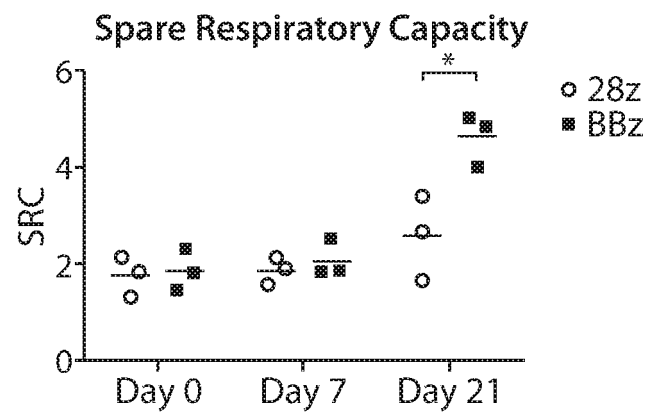


FIG. 35A

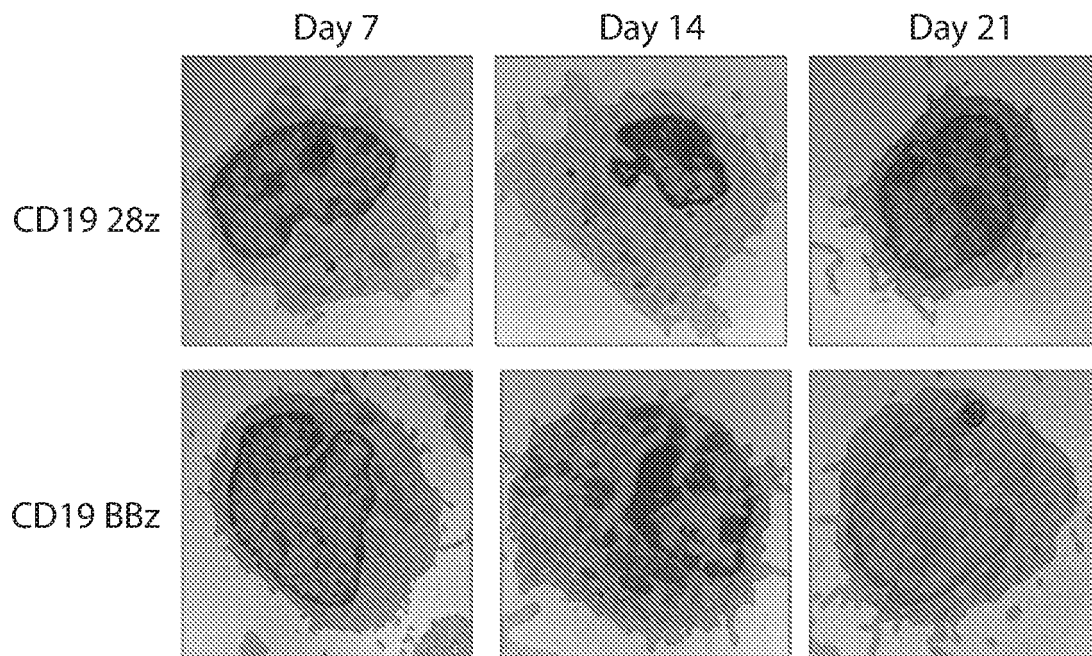


FIG. 35B

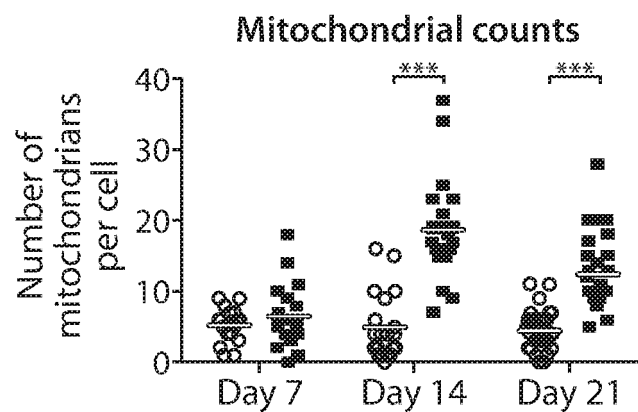


FIG. 35C

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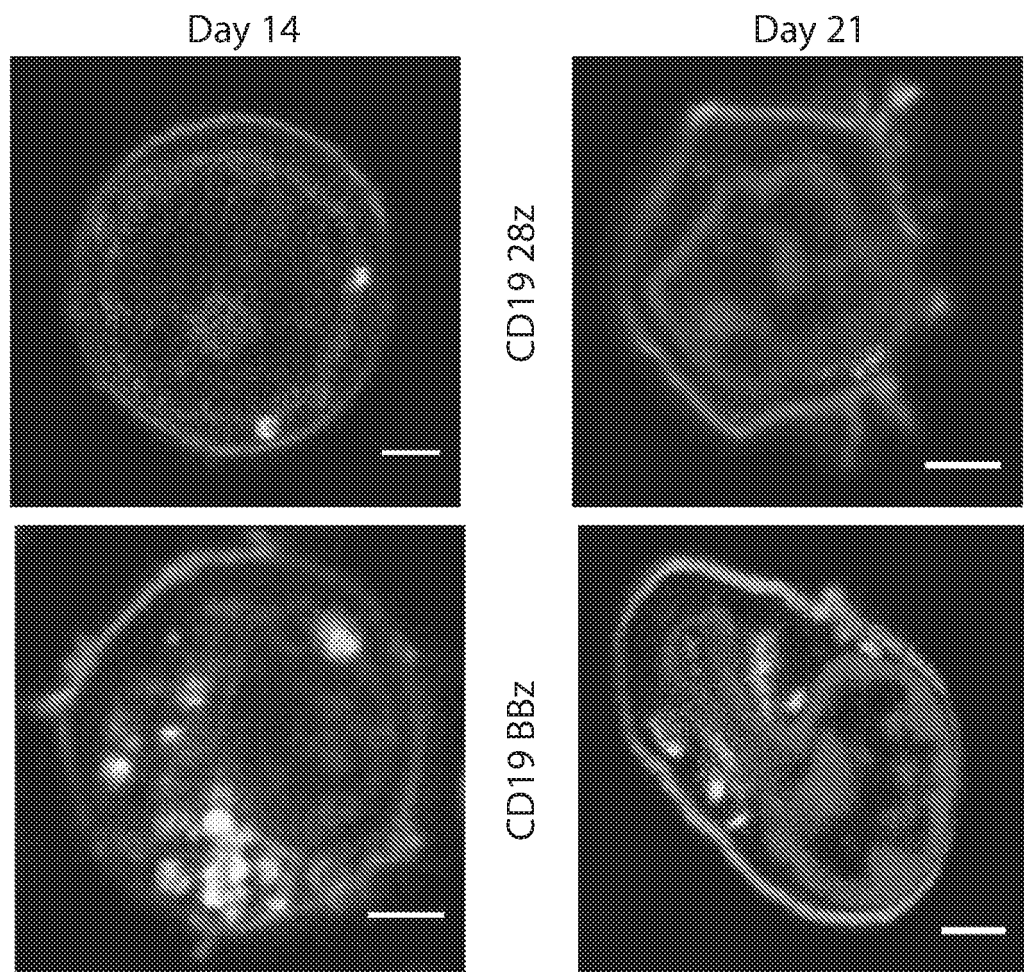


FIG. 36A

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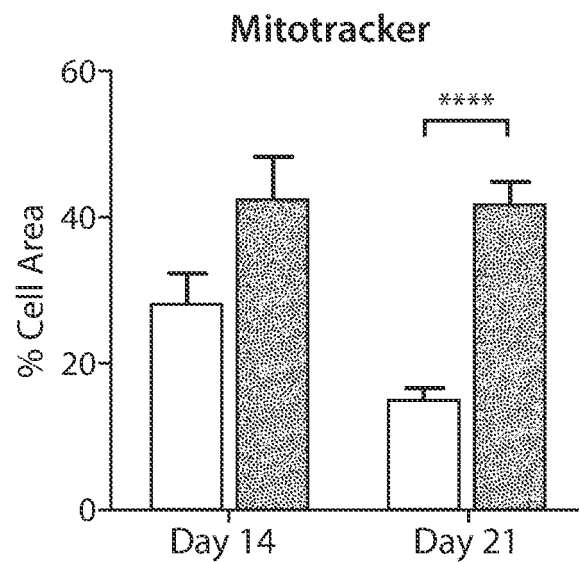


FIG. 36B

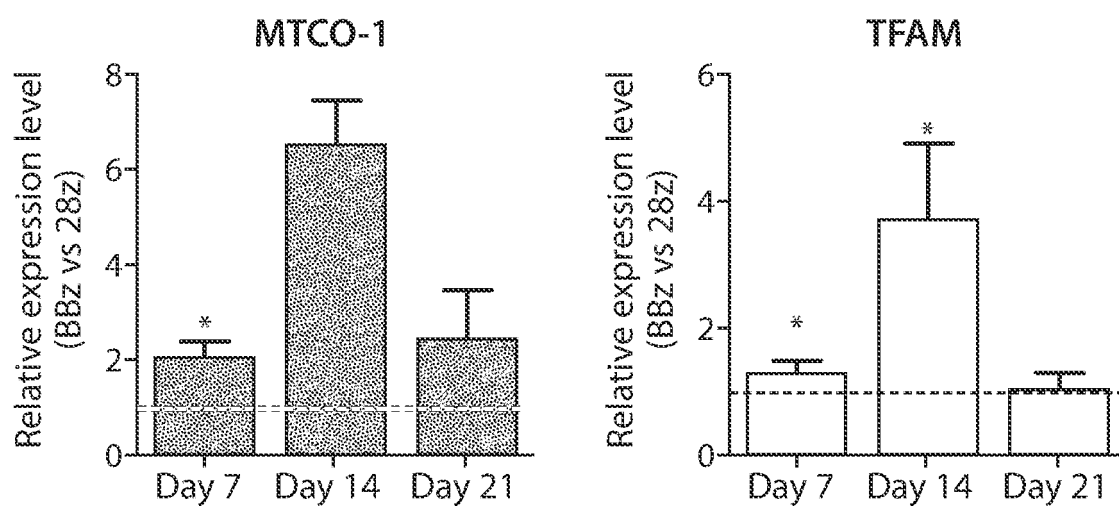


FIG. 36C

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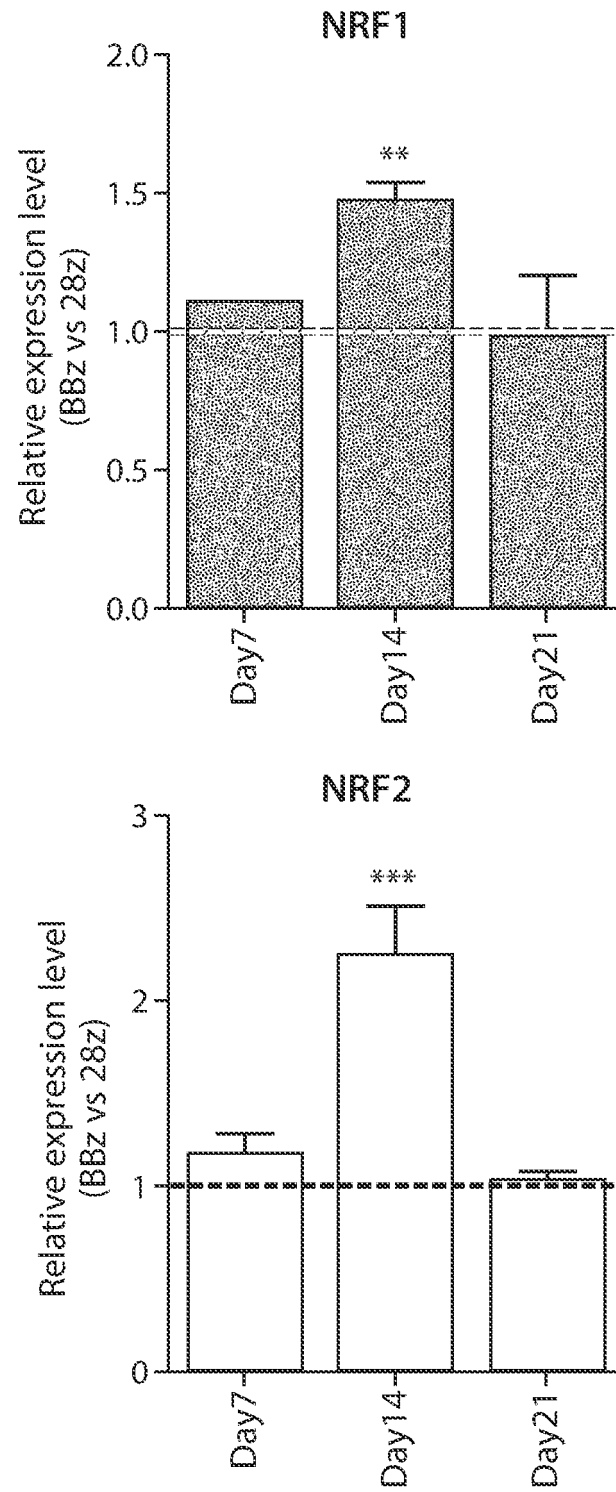


FIG. 36D

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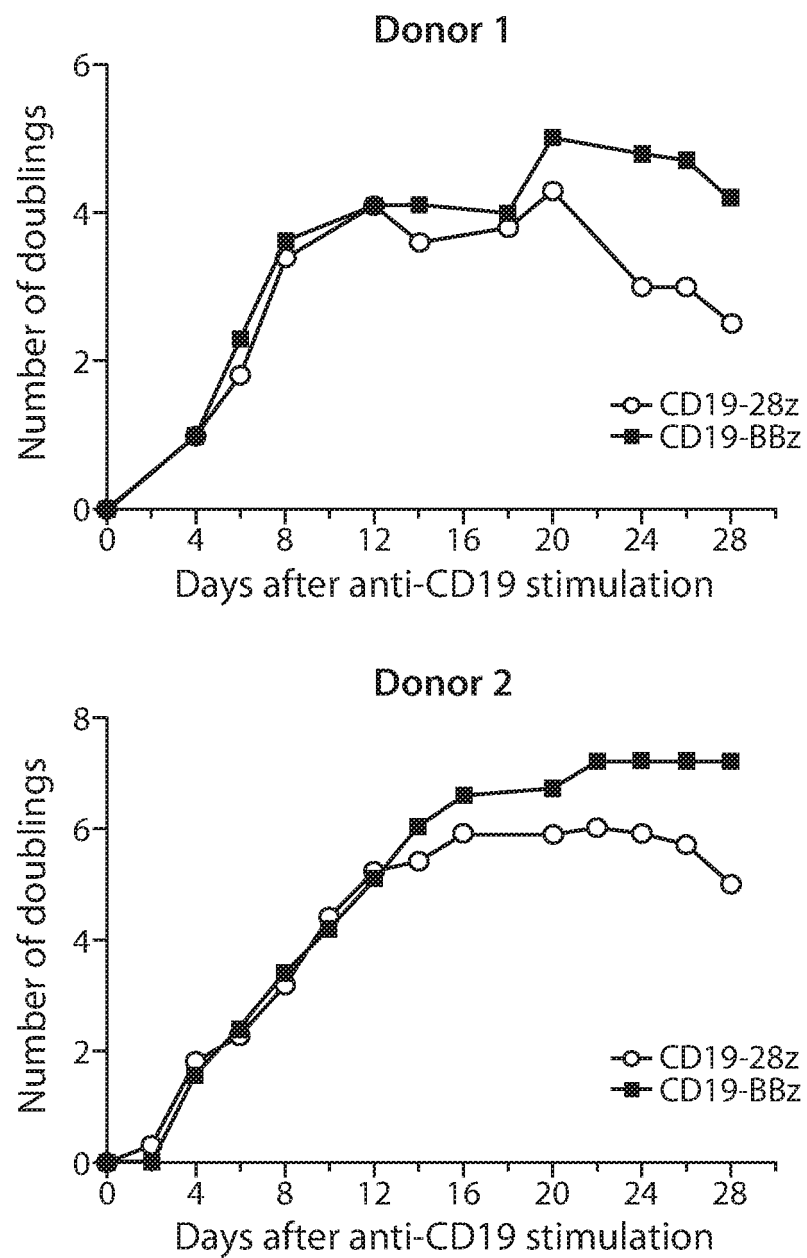


FIG. 37

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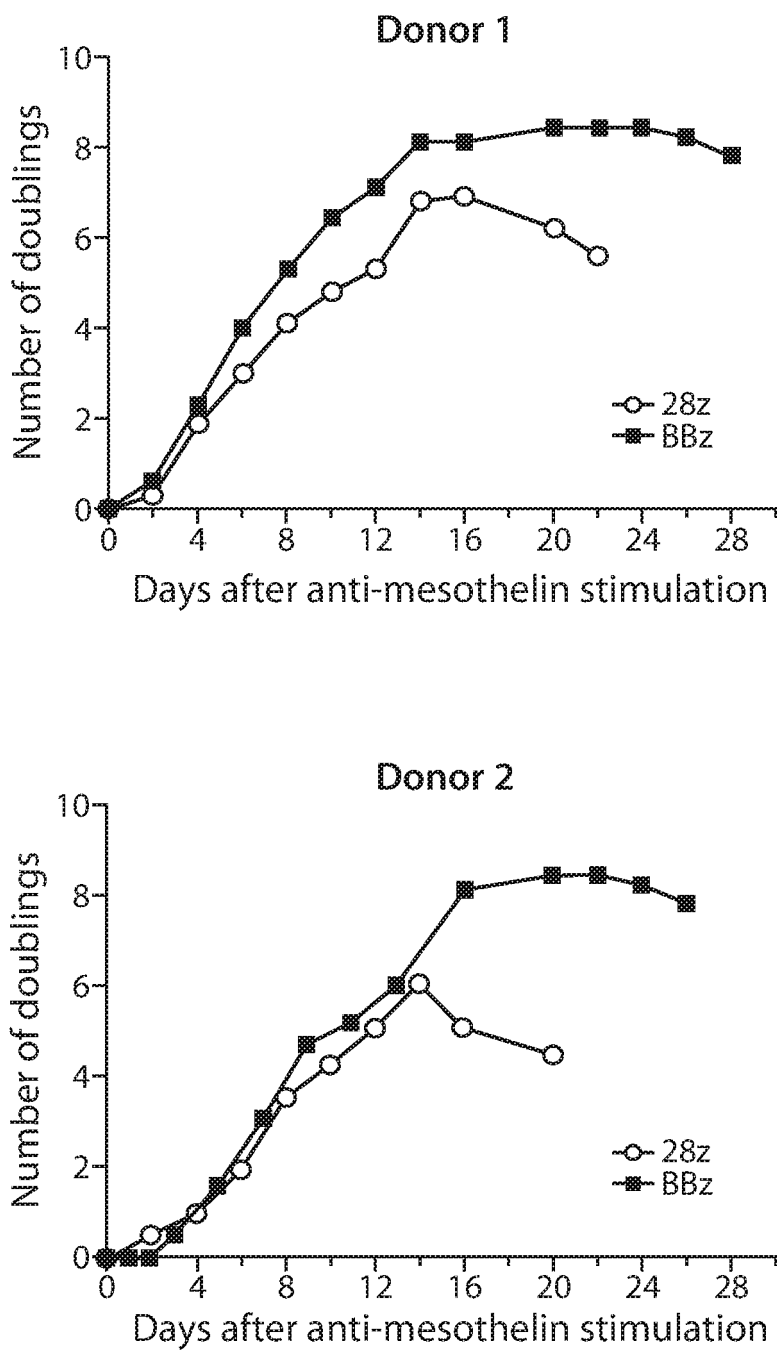


FIG. 38

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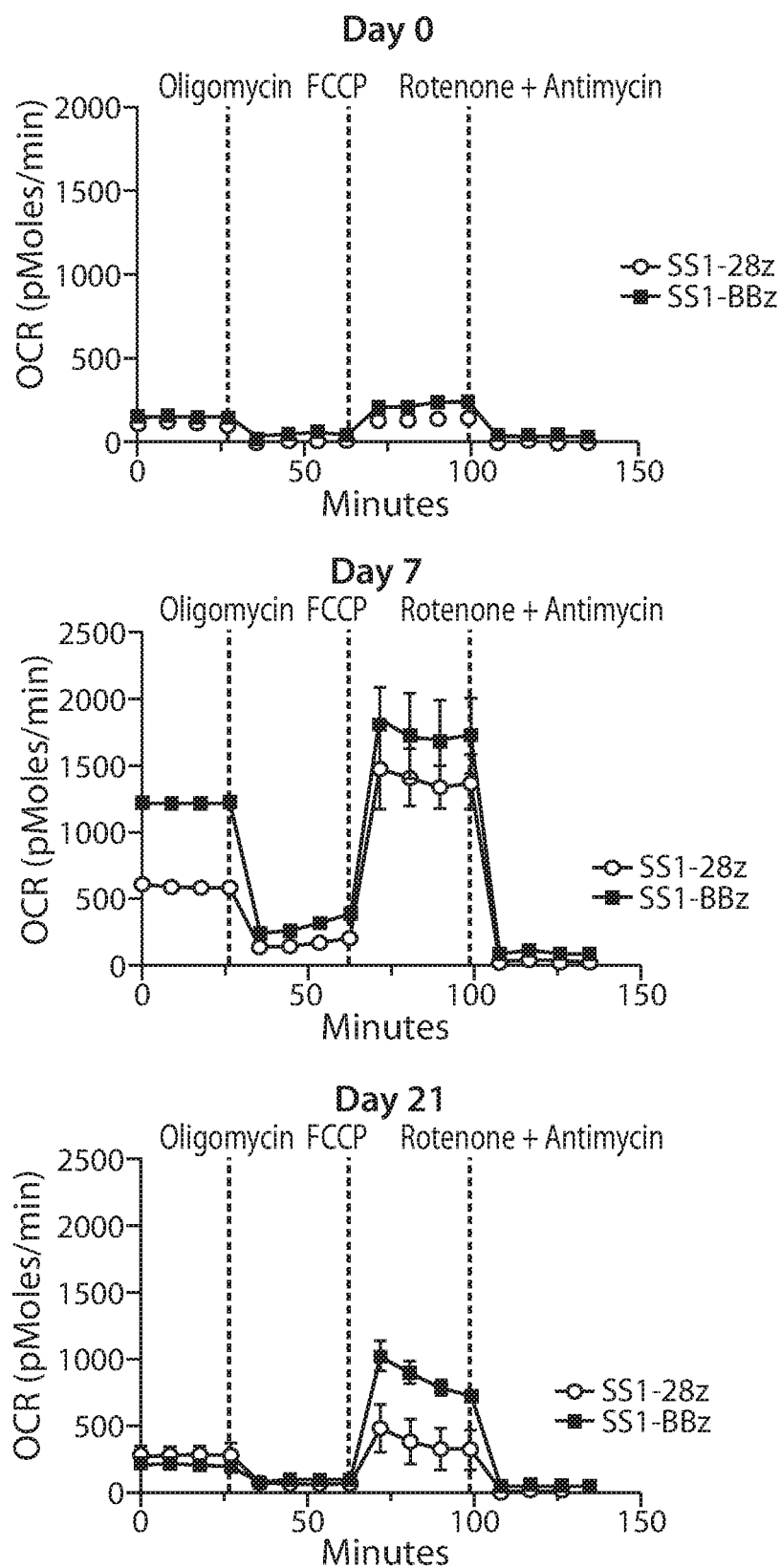


FIG. 39

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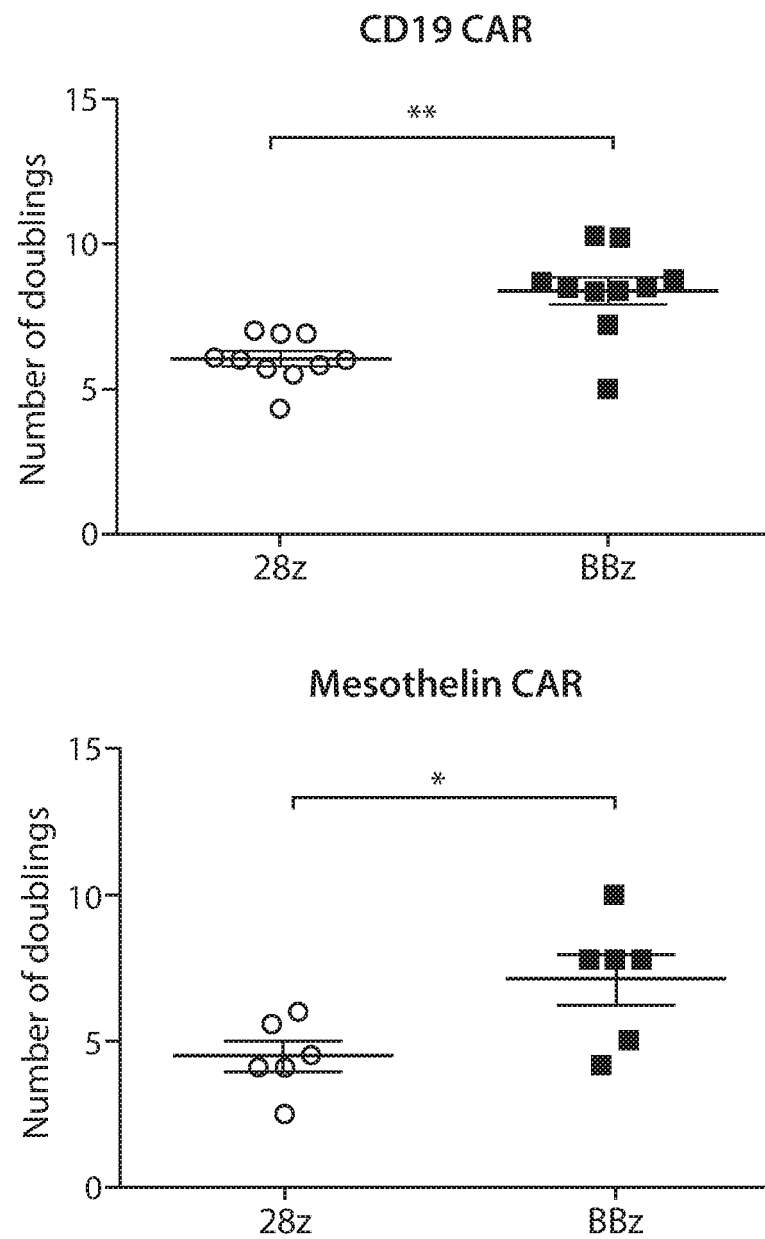


FIG. 40

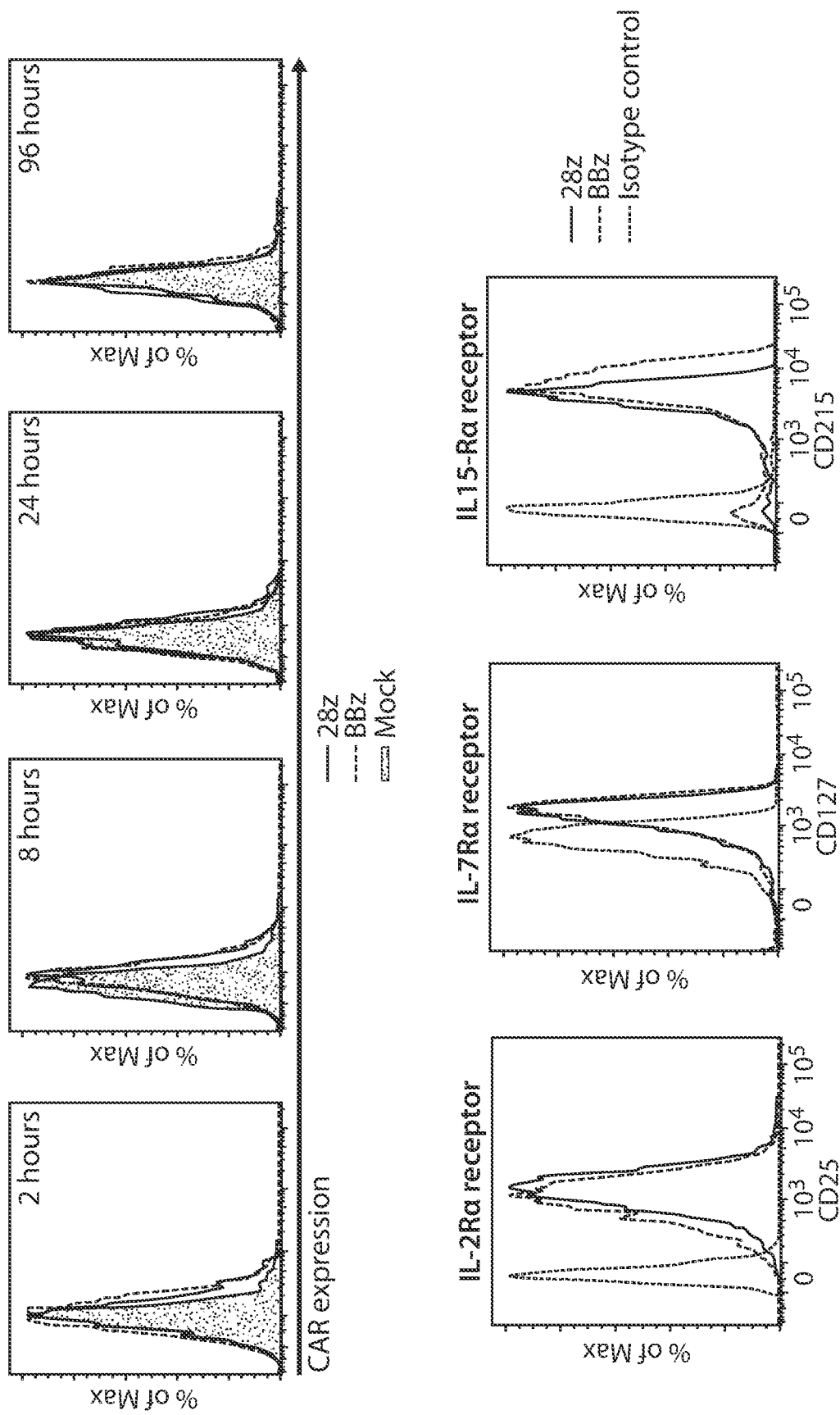


FIG. 41

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