

1/41

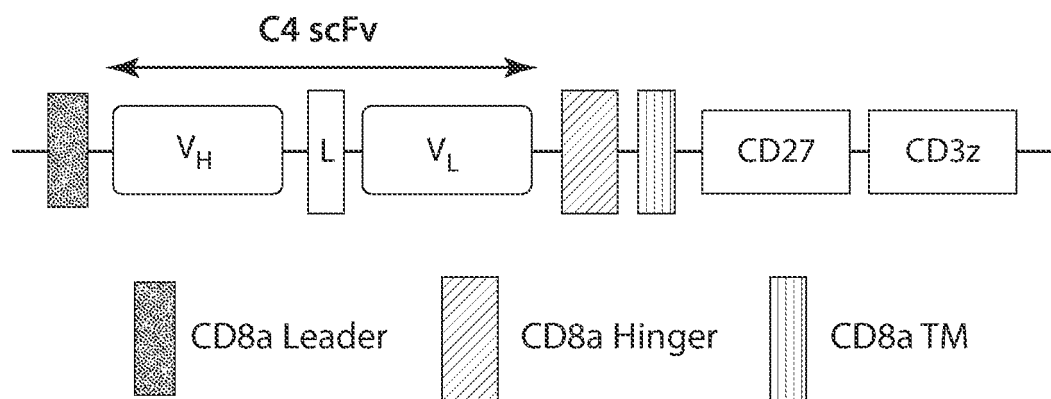


FIG. 1A

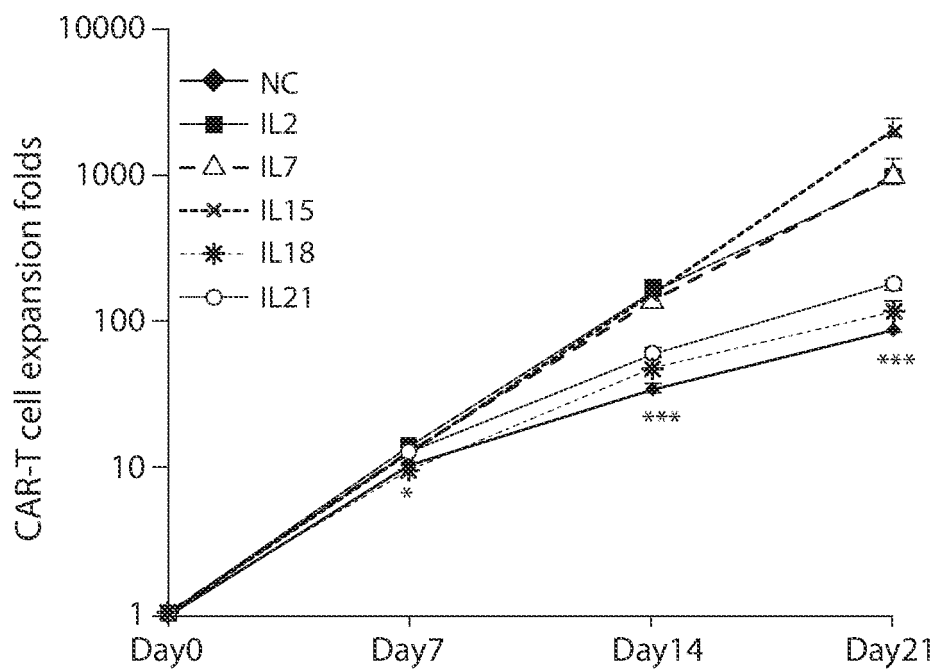


FIG. 1B

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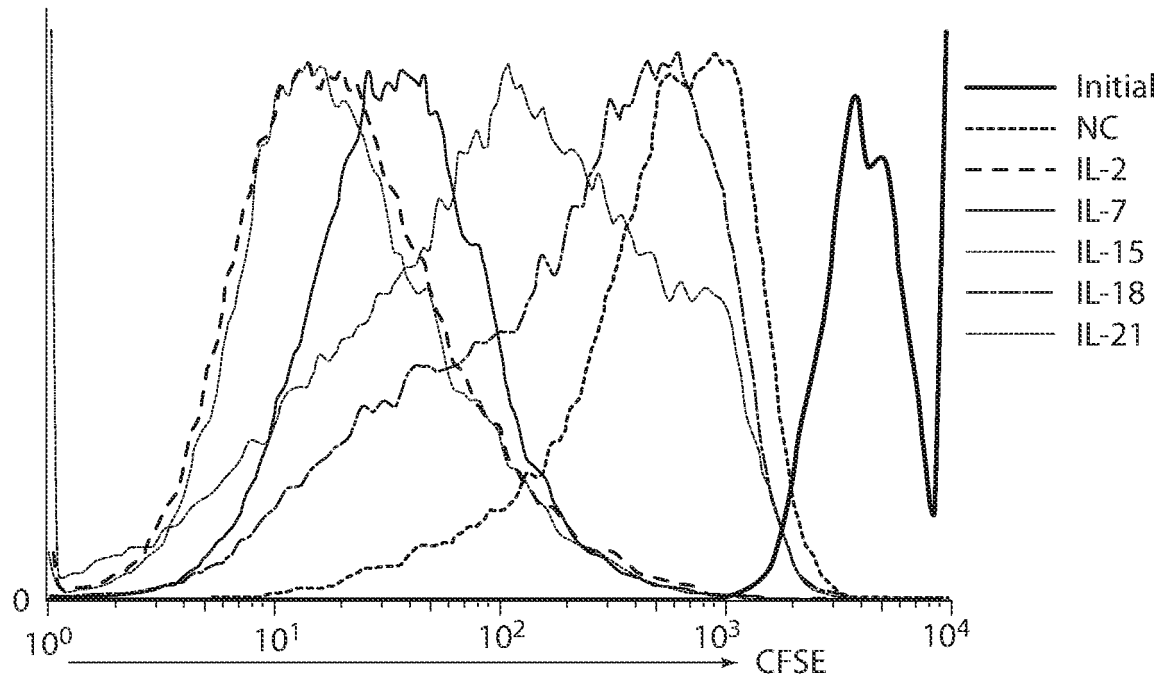


FIG. 1C

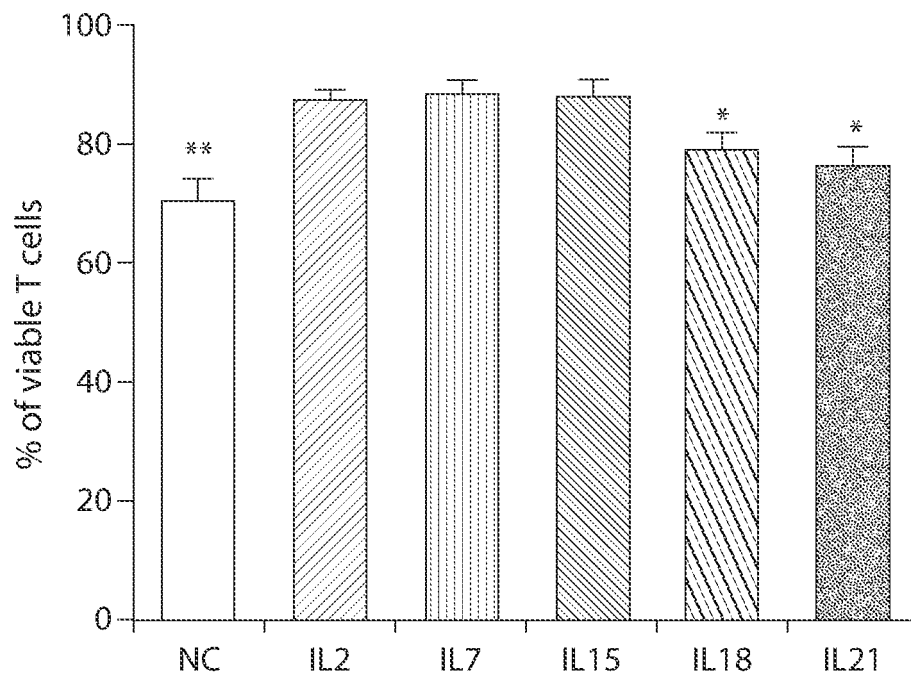


FIG. 1D

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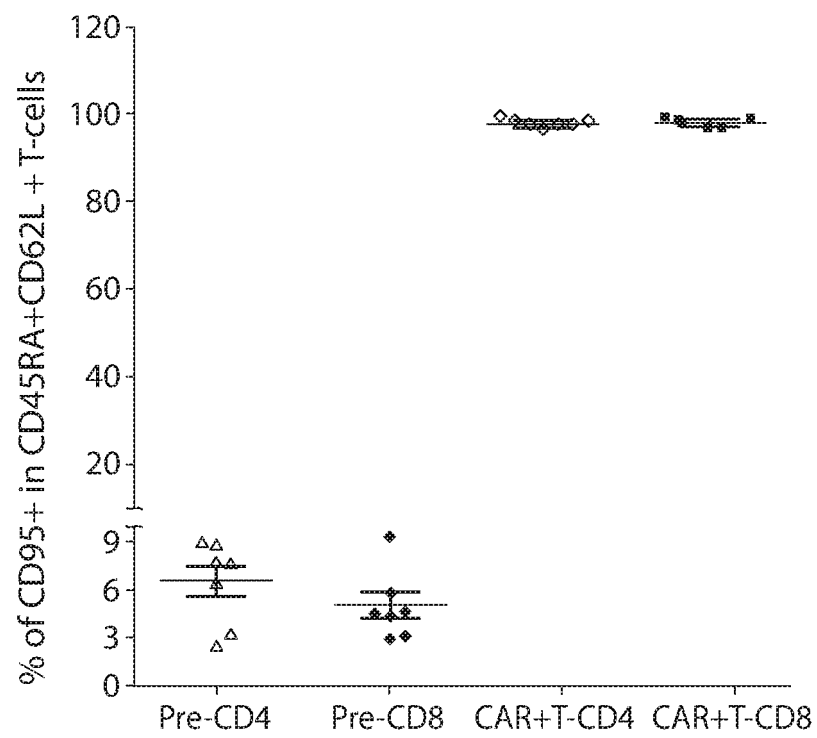


FIG. 2A

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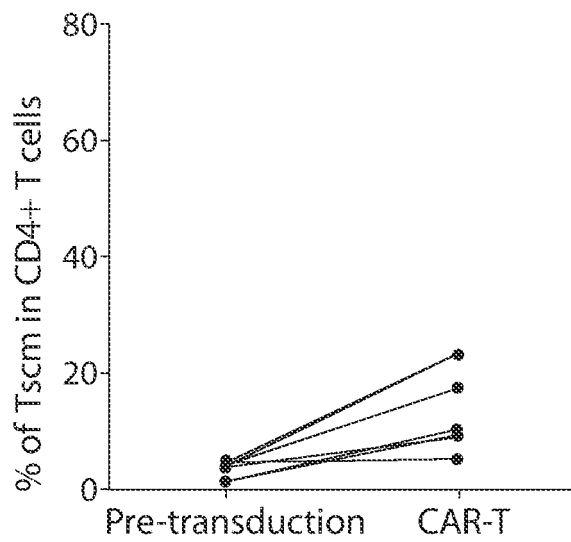


FIG. 2B

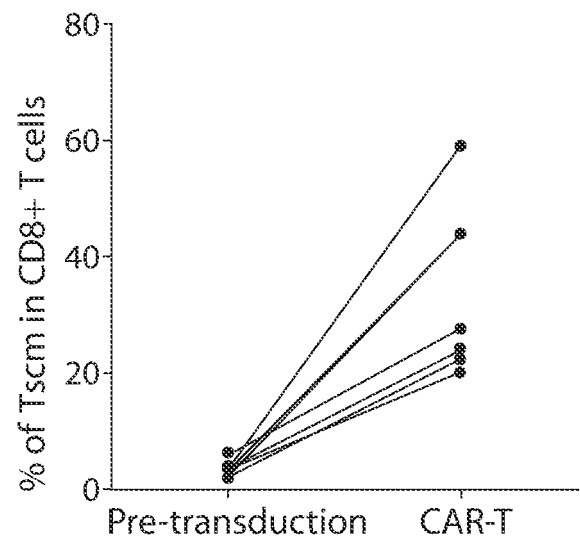


FIG. 2C

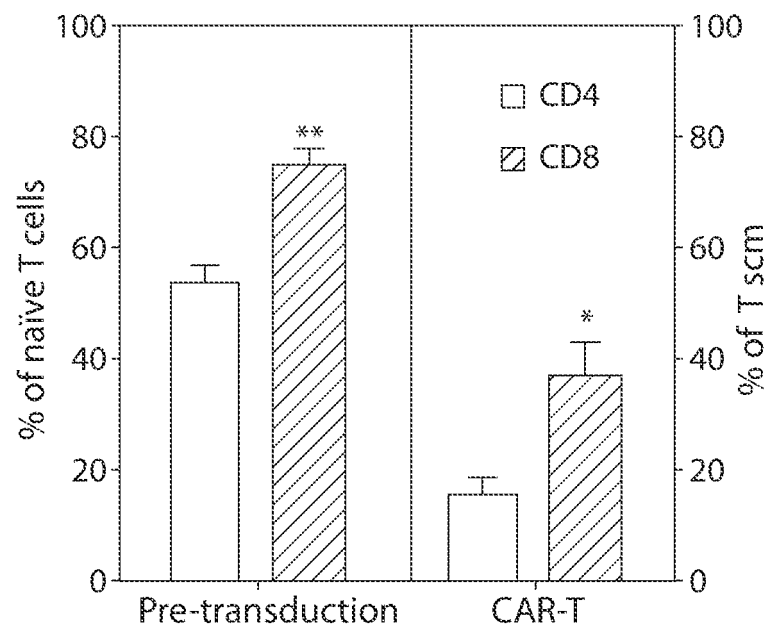


FIG. 2D

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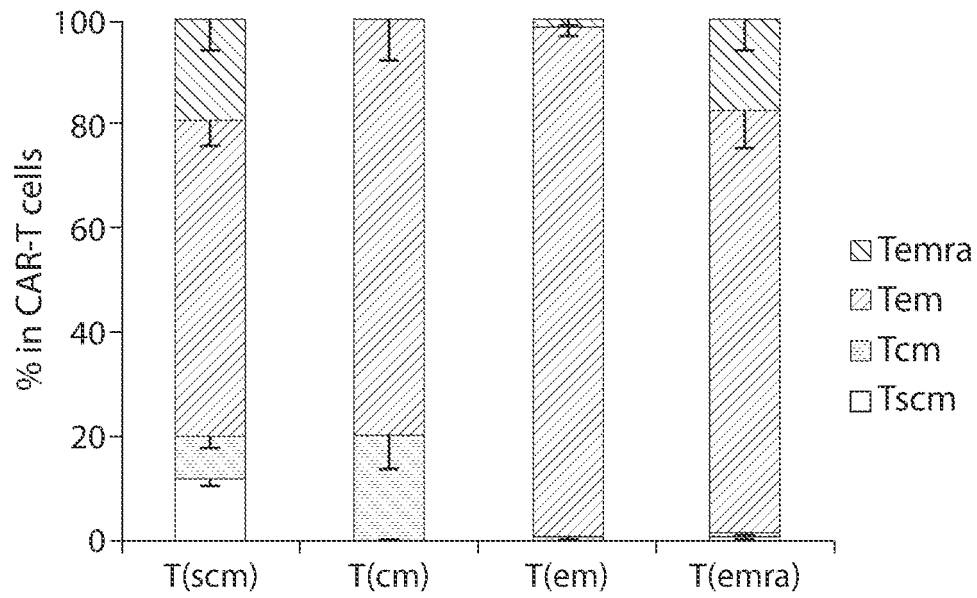


FIG. 2E

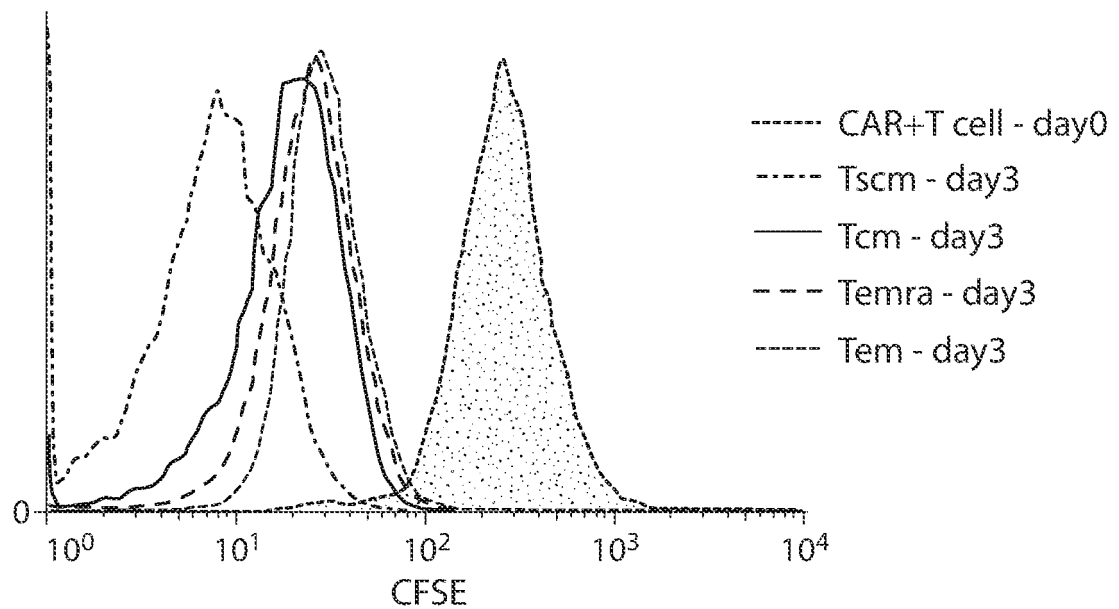


FIG. 2F

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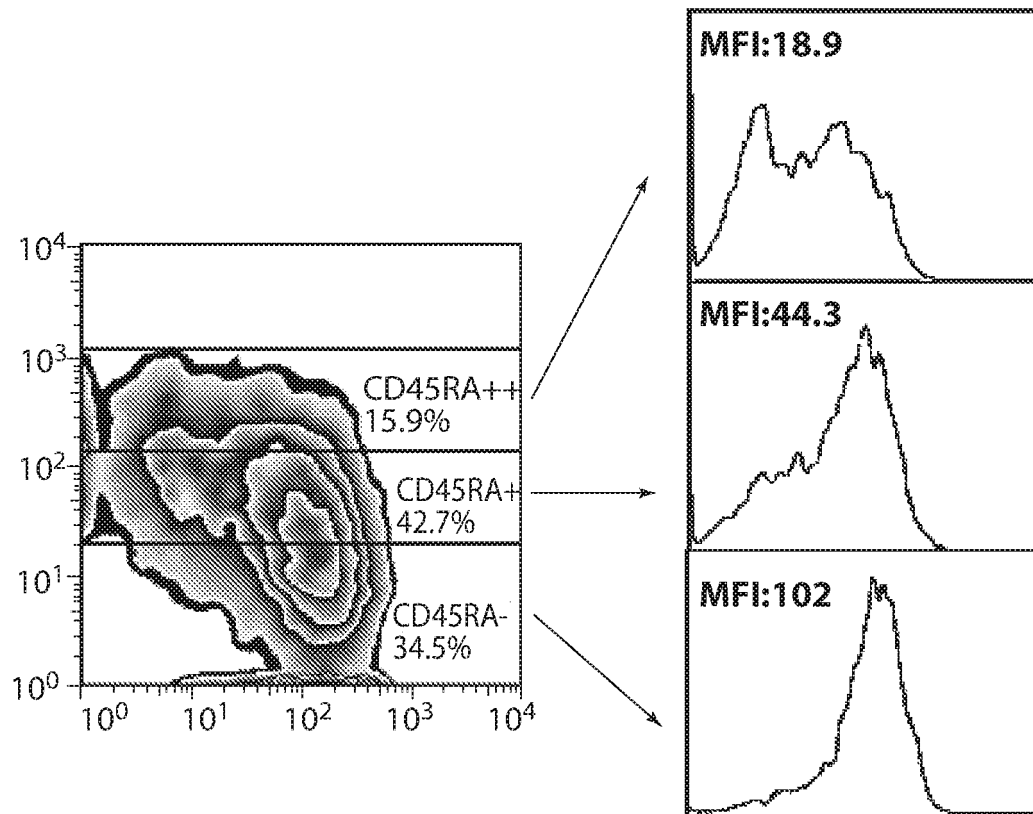


FIG. 3A

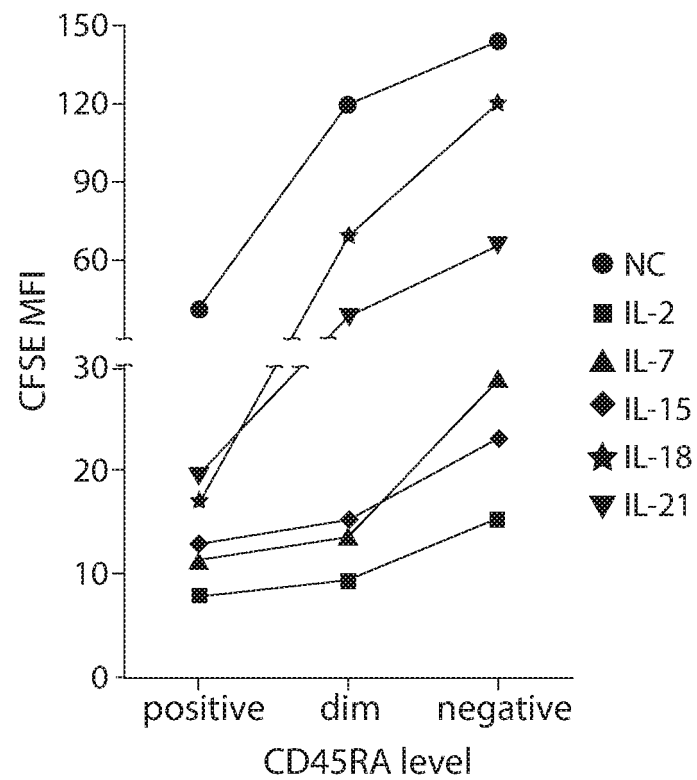


FIG. 3B

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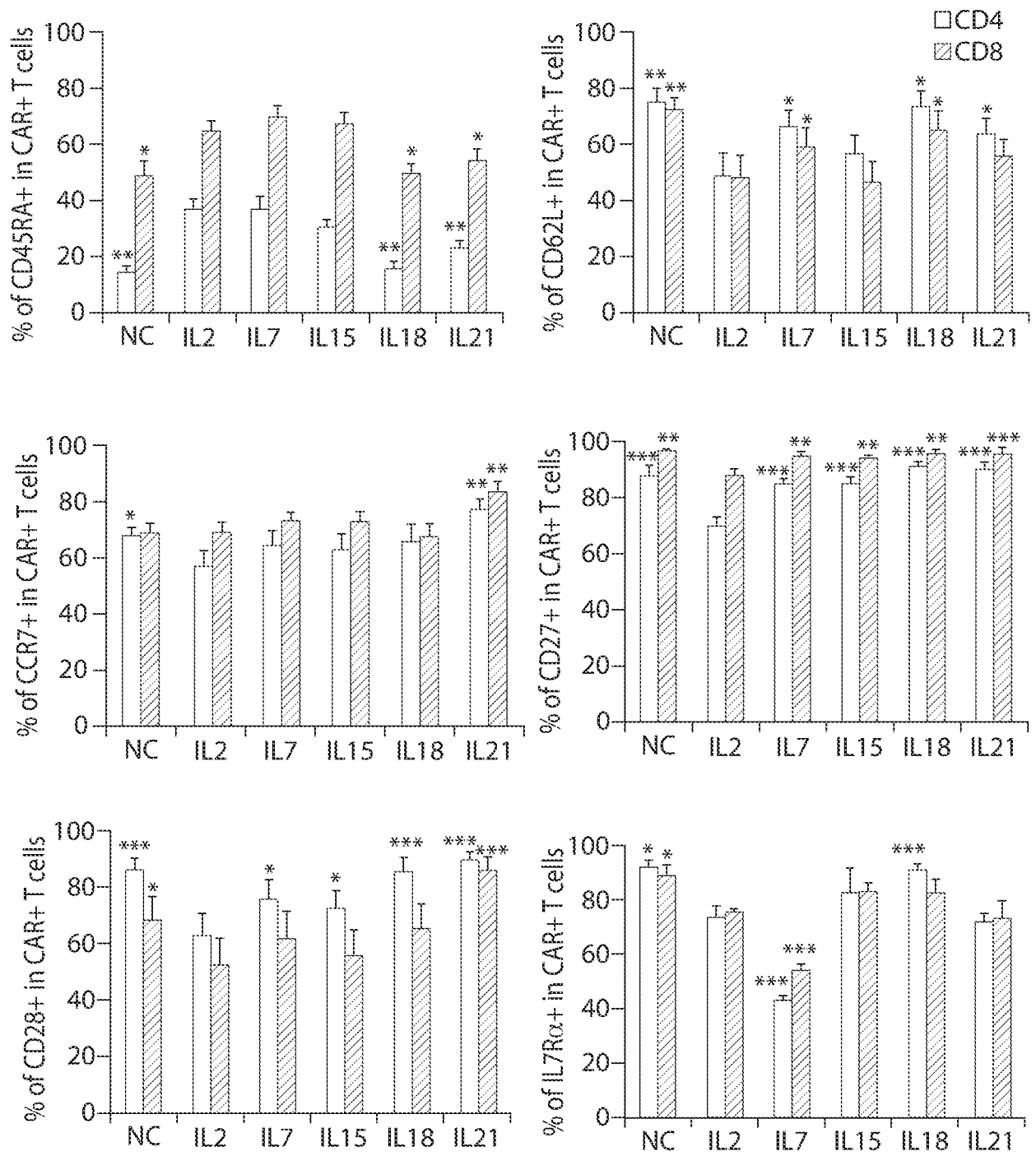


FIG. 4

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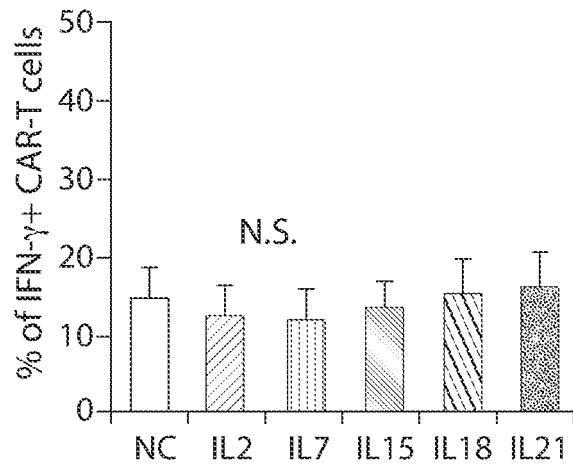


FIG. 5A

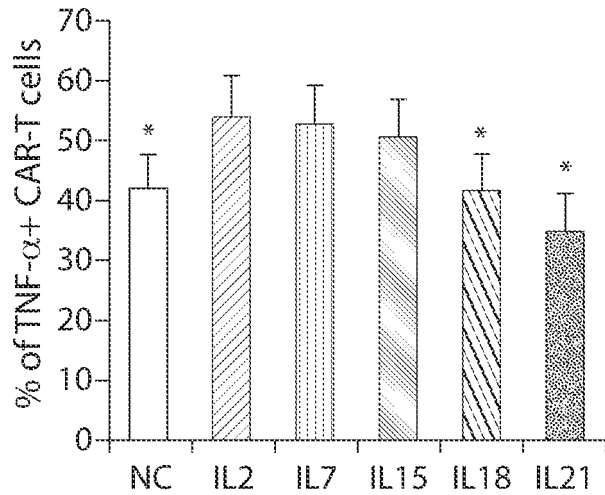


FIG. 5B

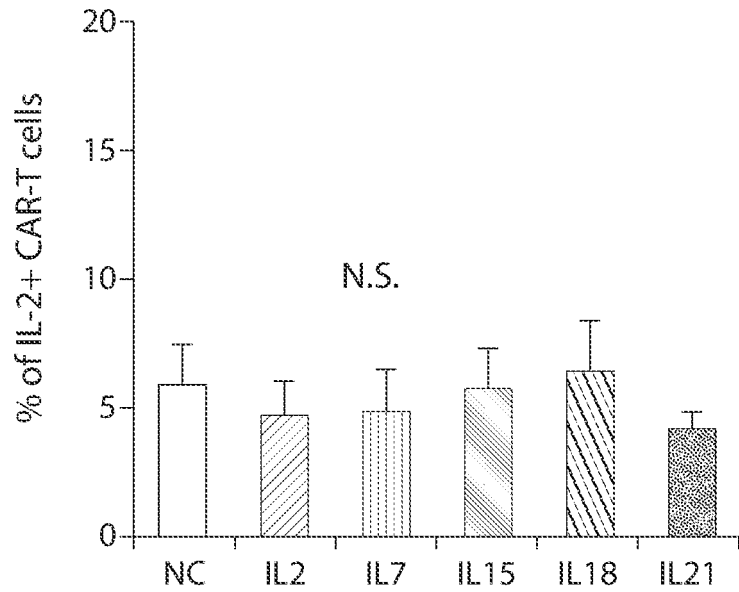


FIG. 5C

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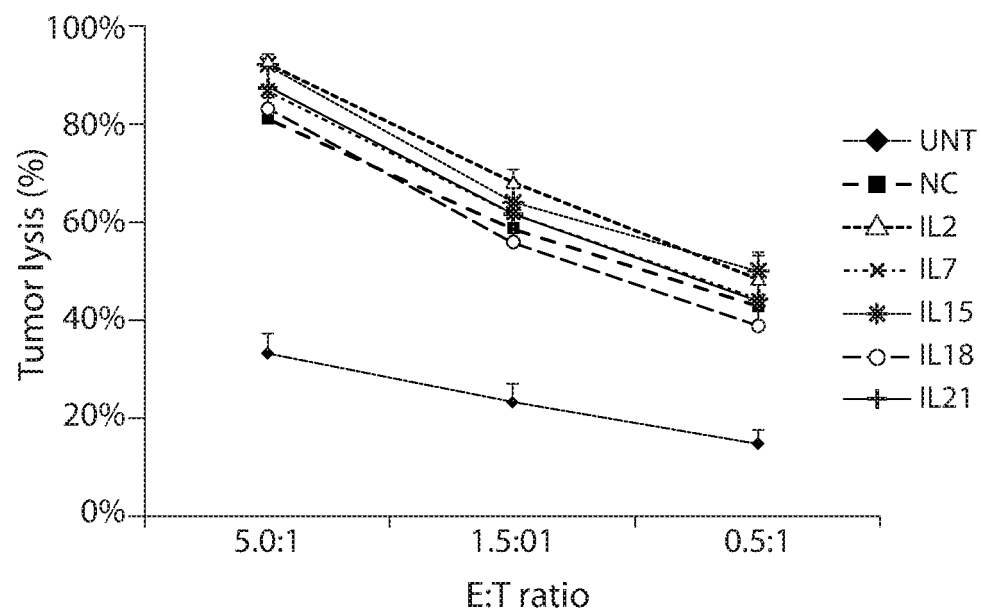


FIG. 5D

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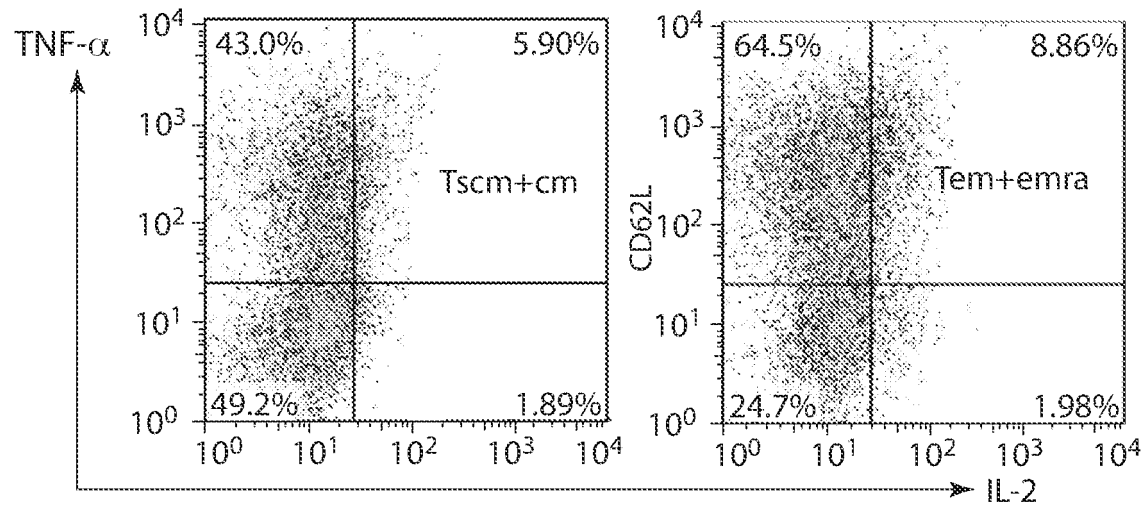


FIG. 6A

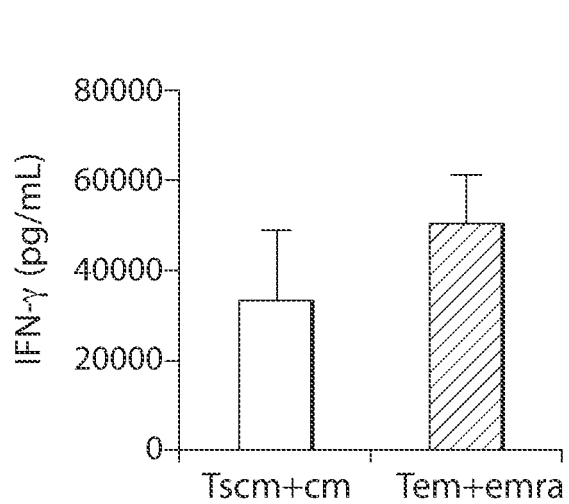


FIG. 6B

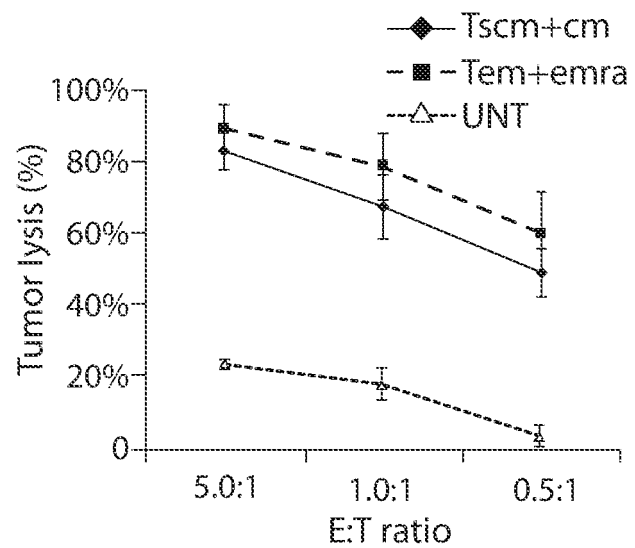


FIG. 6C

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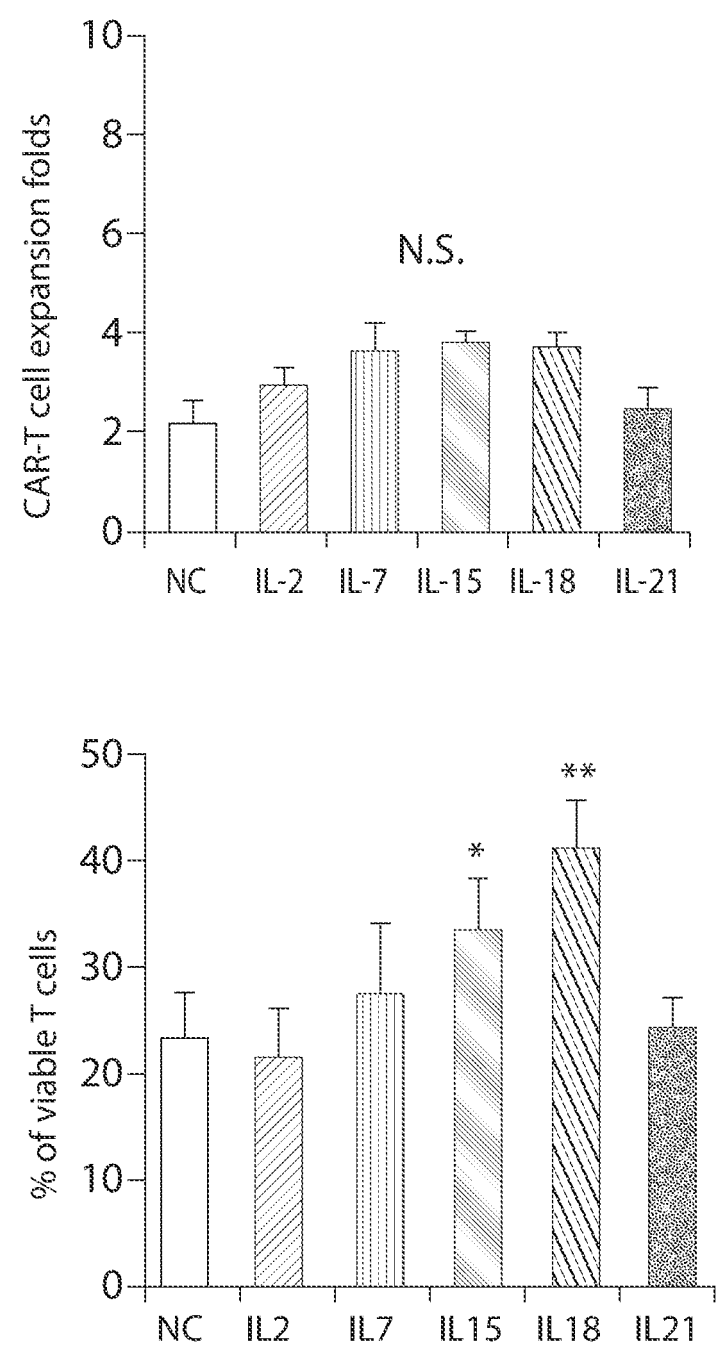


FIG. 7A

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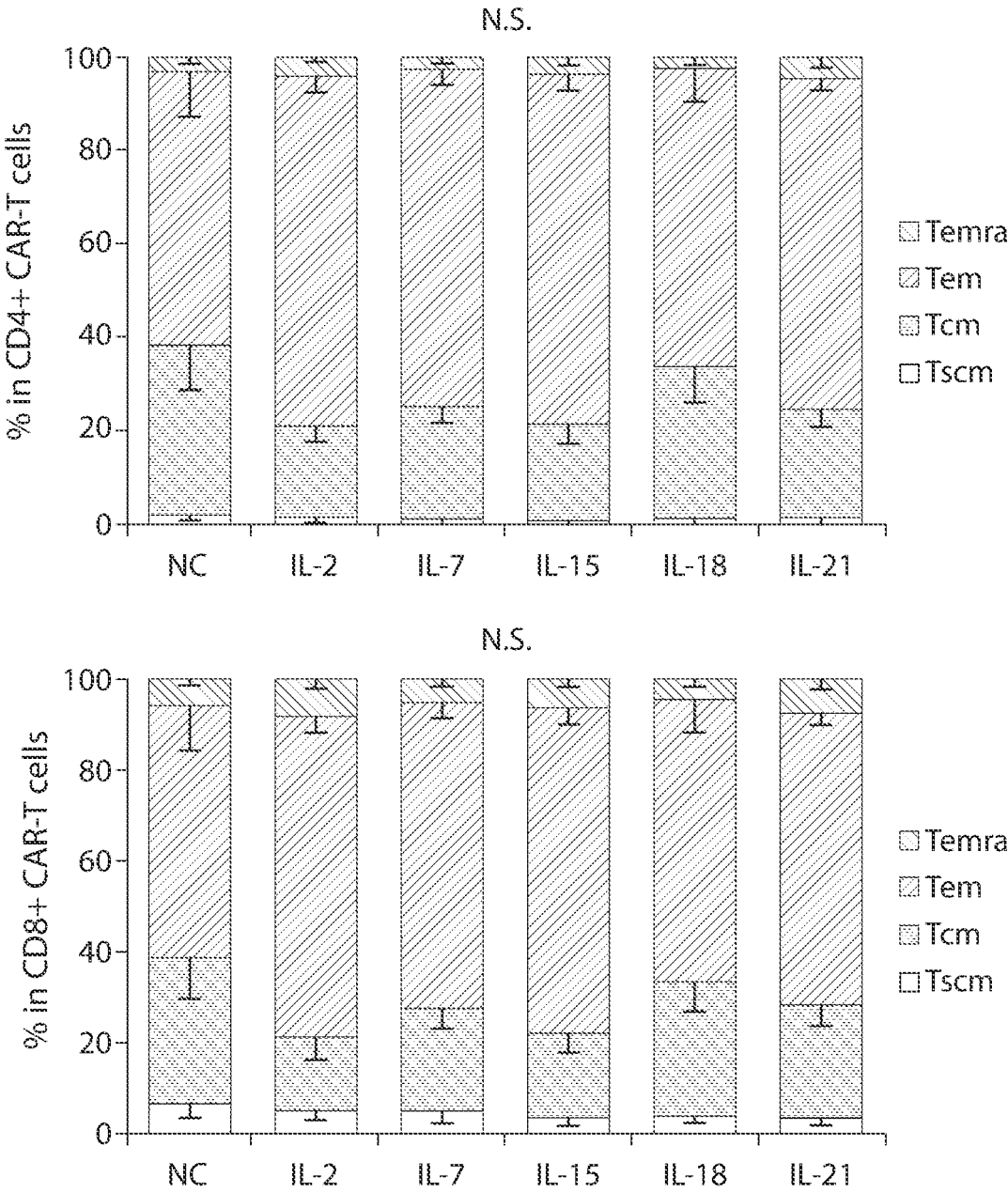


FIG. 7B

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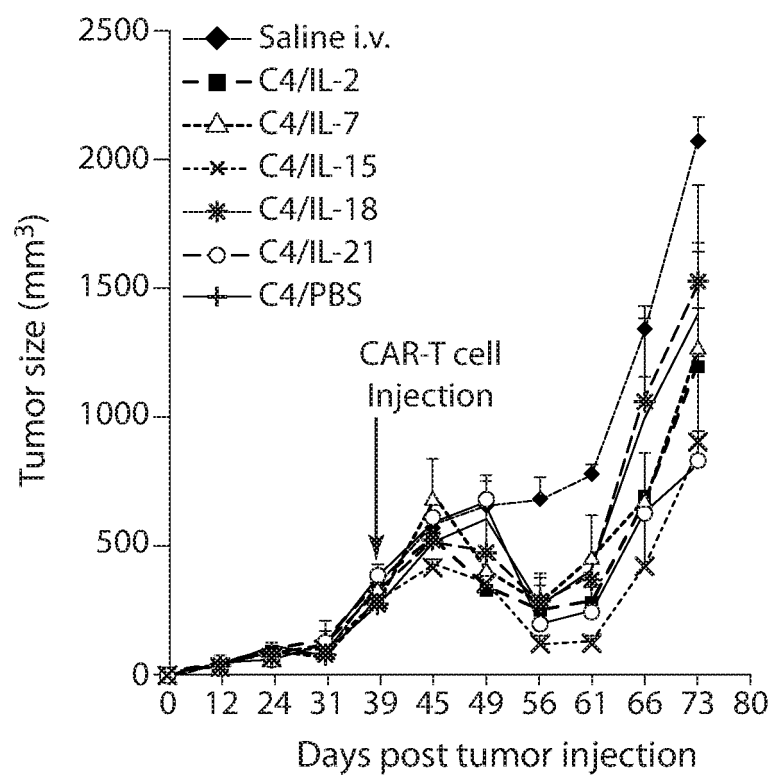


Fig. 8A

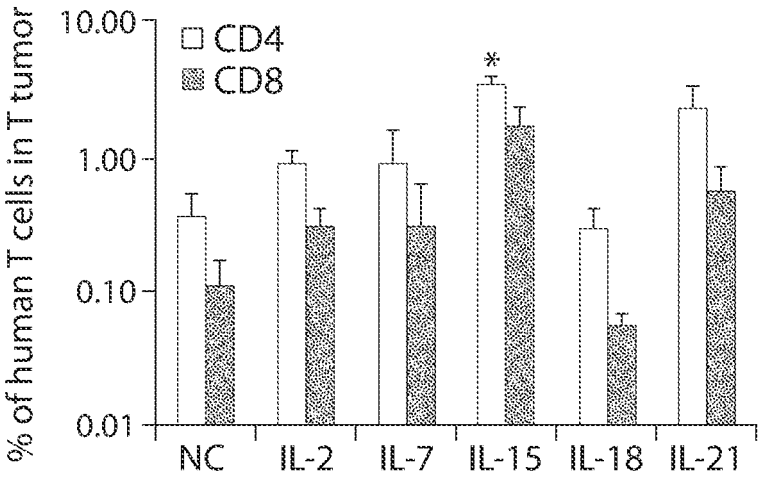


FIG. 8B

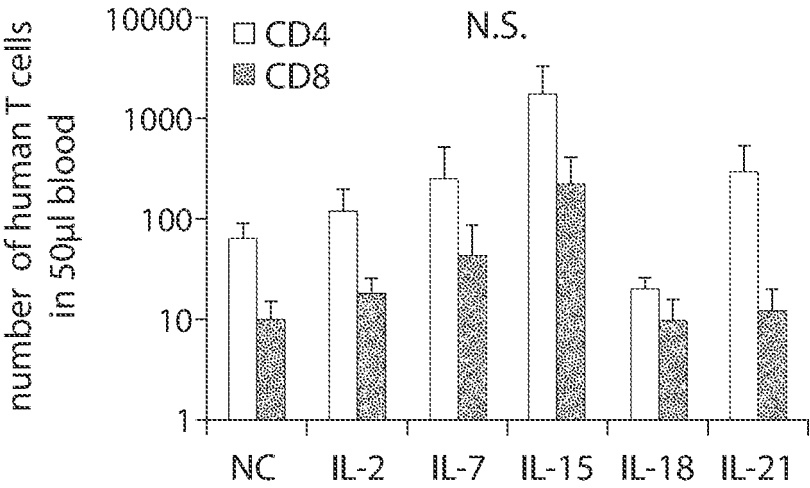


FIG. 8C

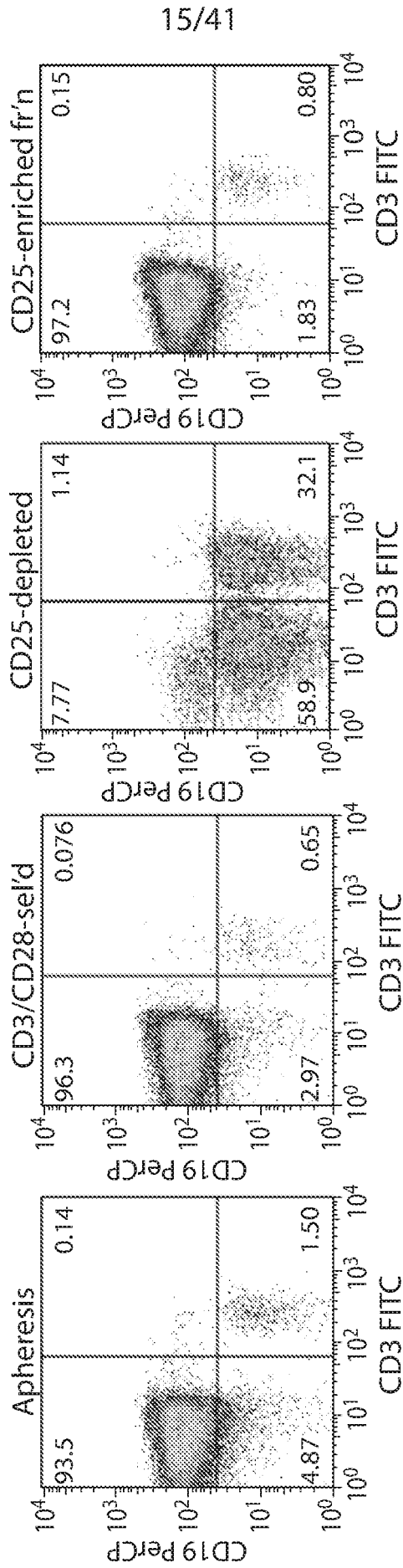


FIG. 9

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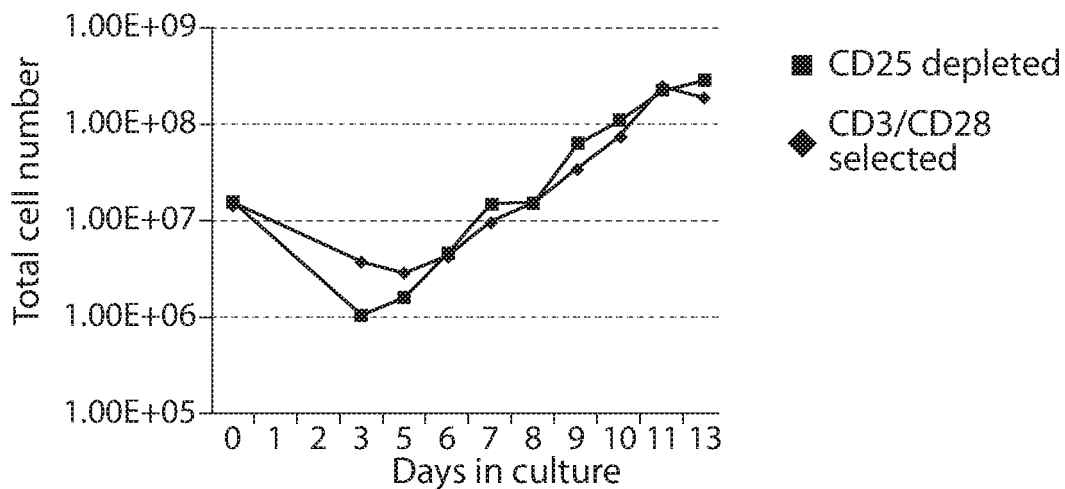


FIG. 10A

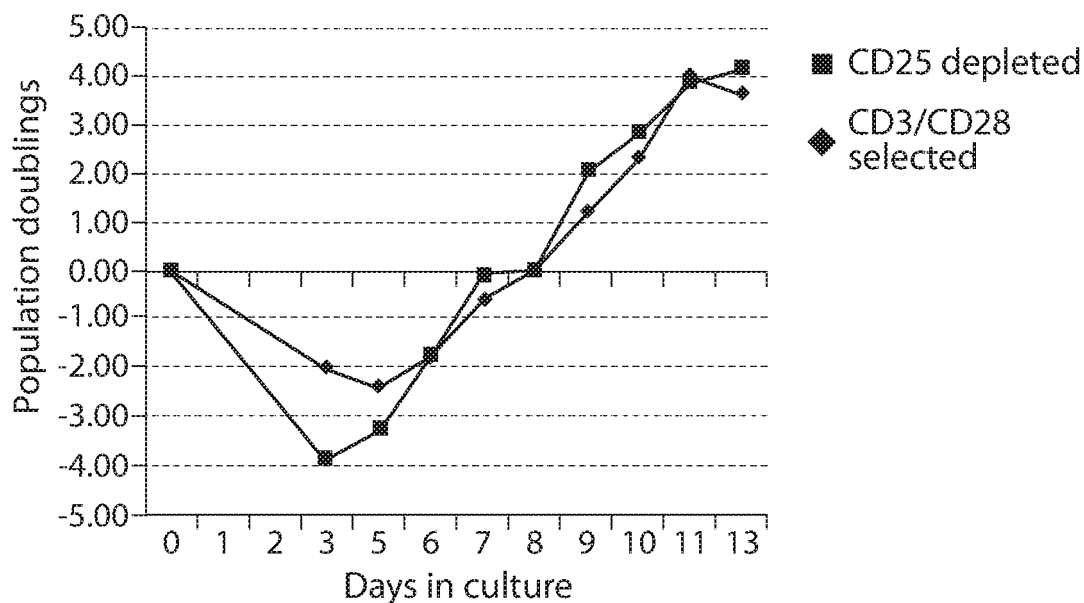


FIG. 10B

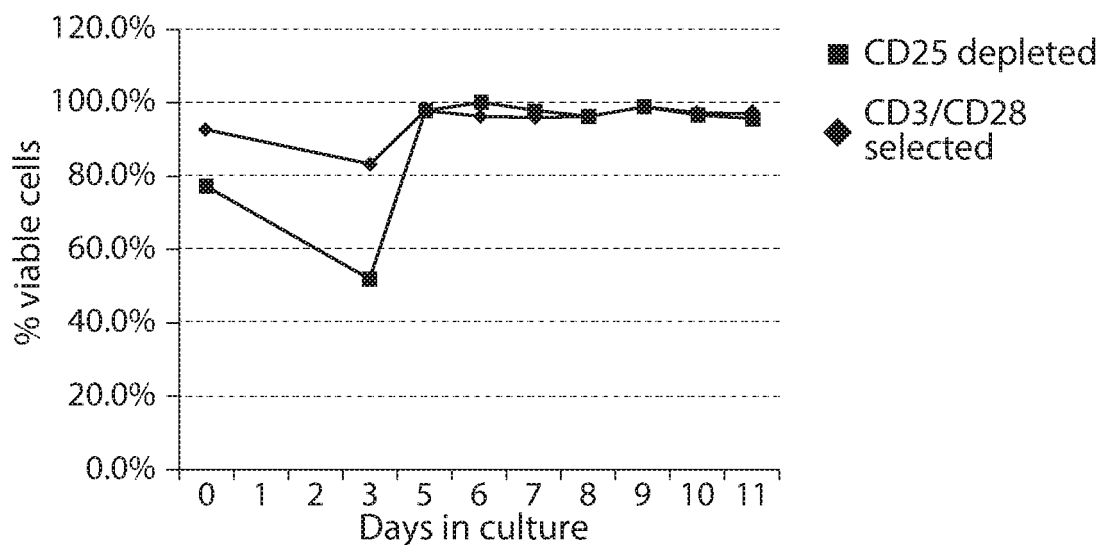


FIG. 10C

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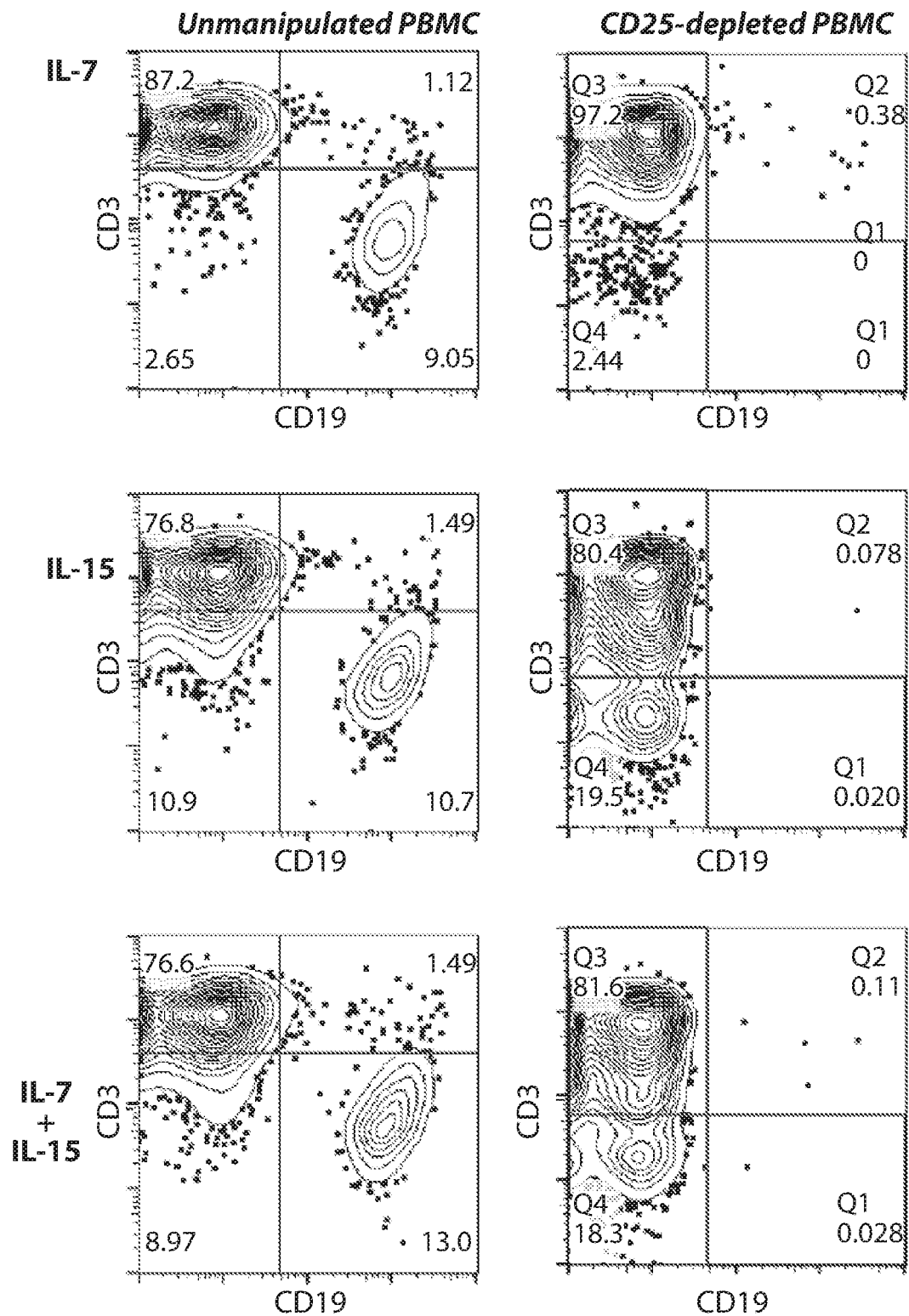


FIG. 11

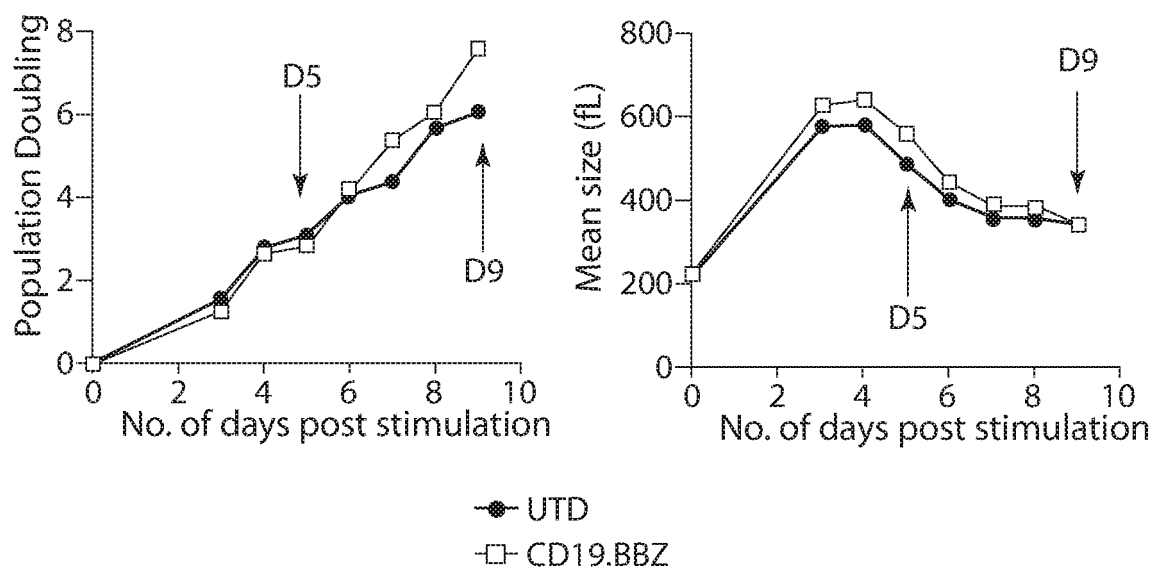
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ND447 PBMCs activated, transduced, de-beaded, and harvested at Day 5 and D9 for comparative performance in vitro and in vivo

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

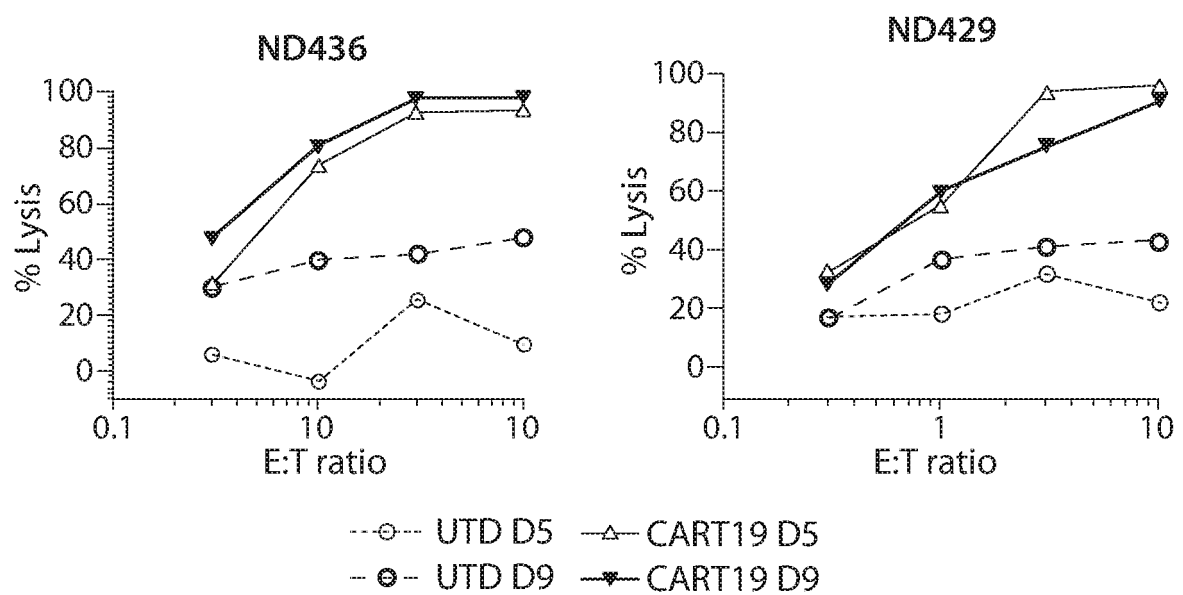


FIG. 13

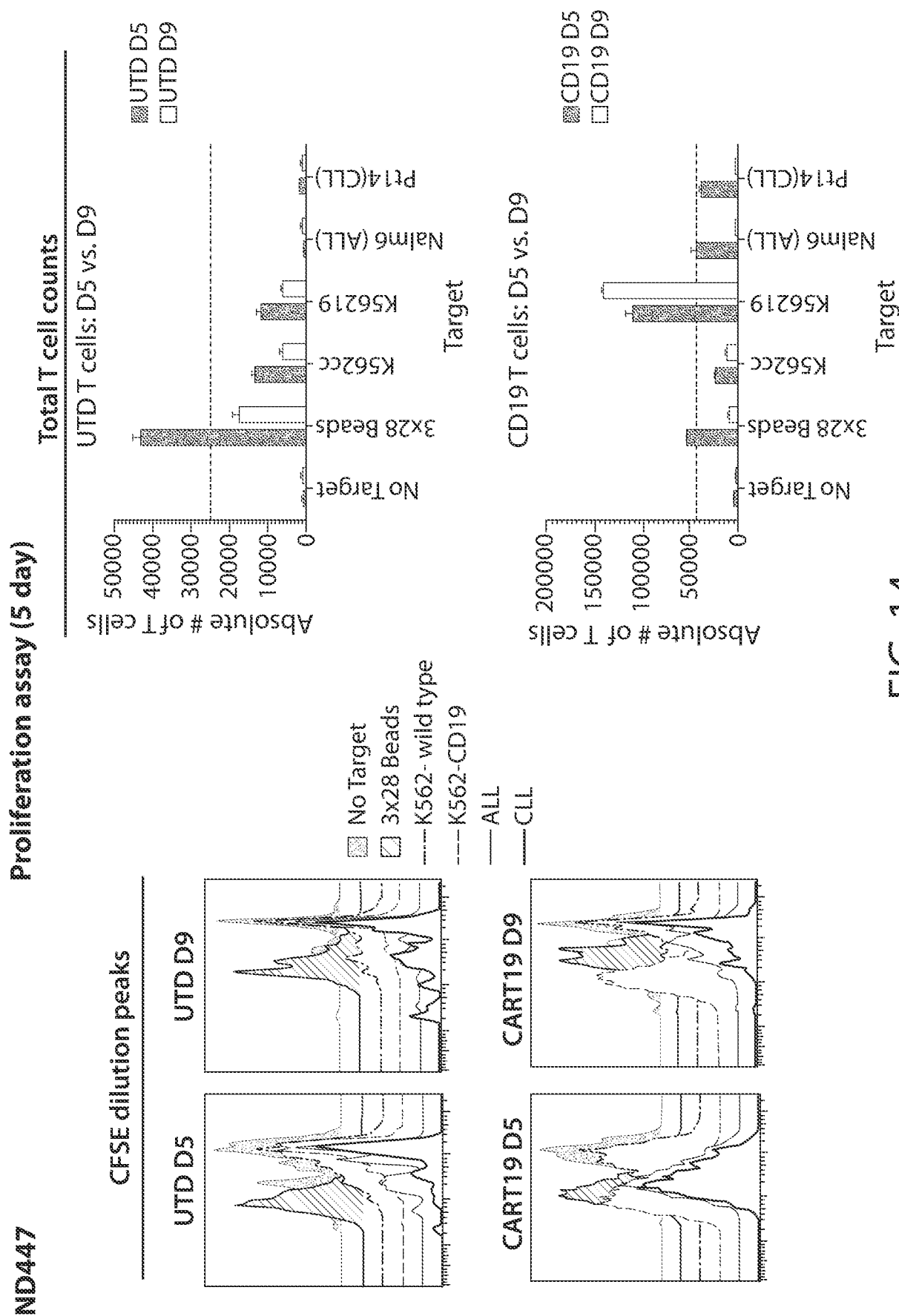


FIG. 14

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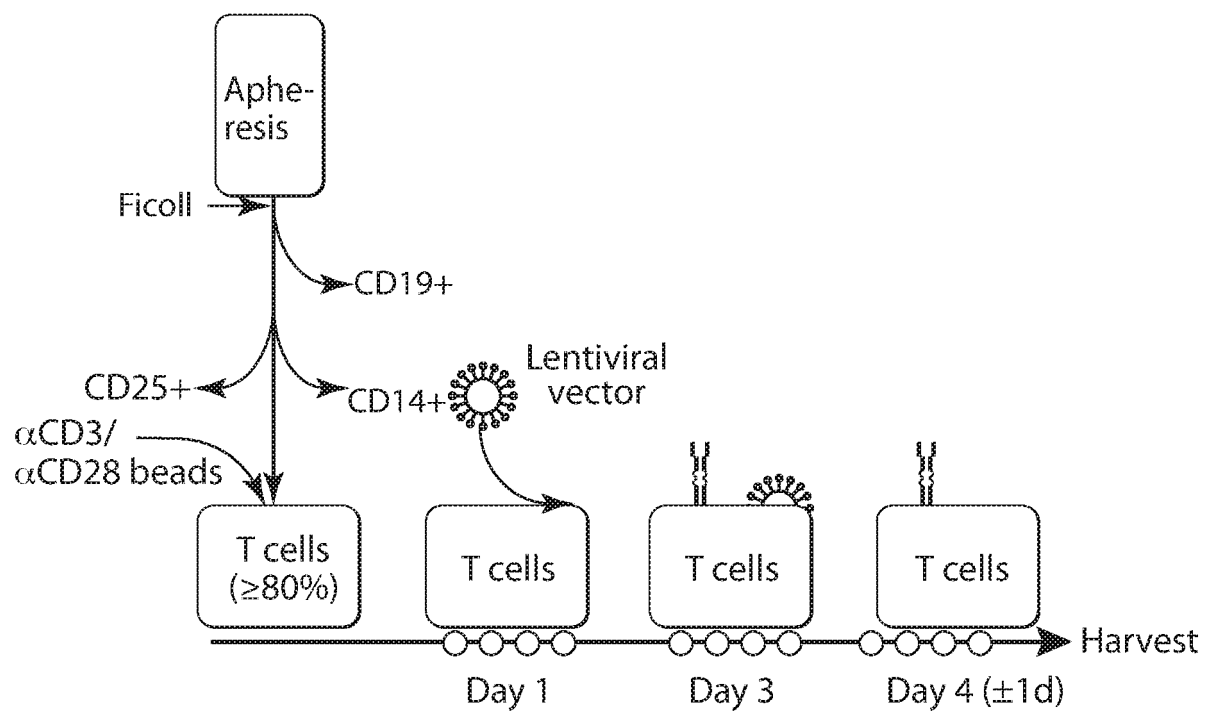


FIG. 15

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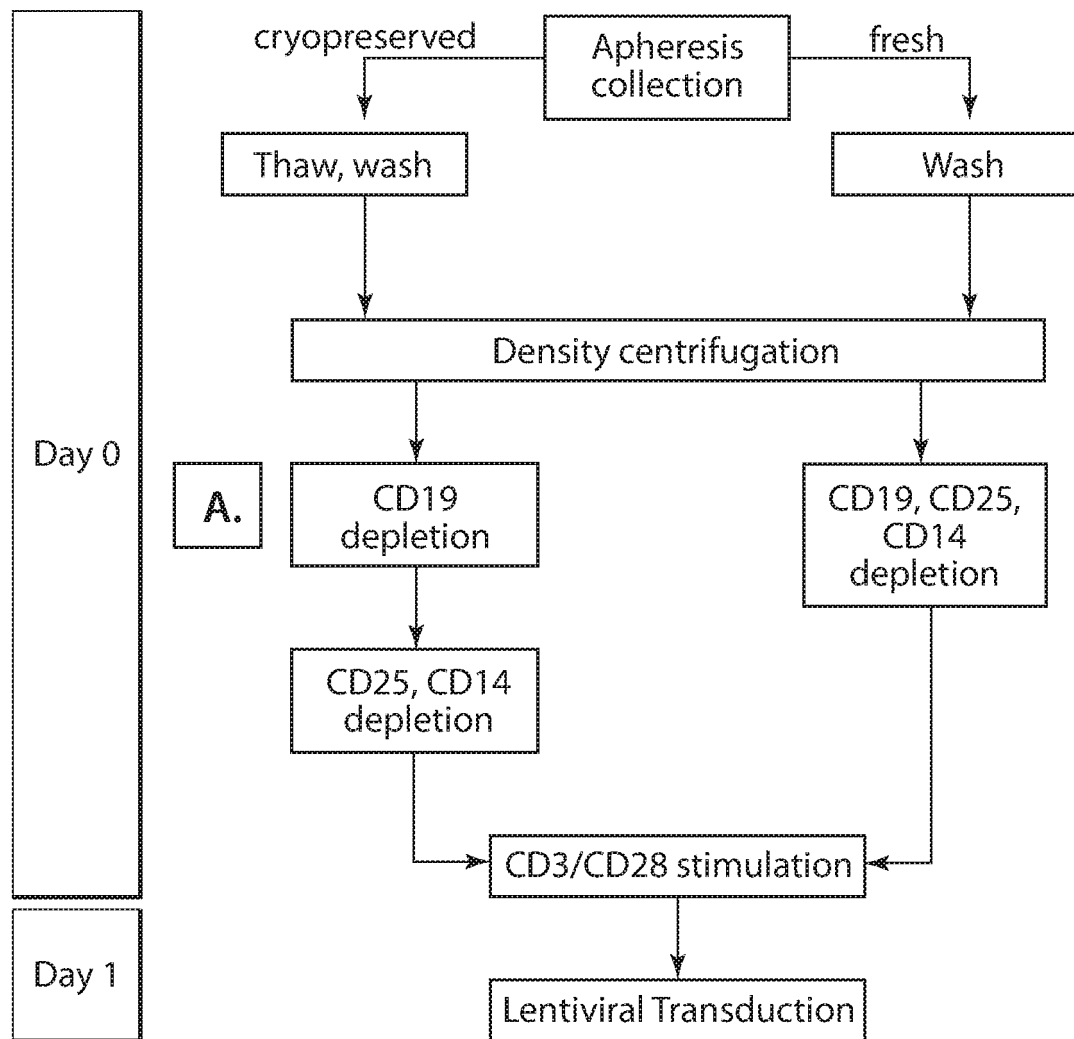


FIG. 16

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

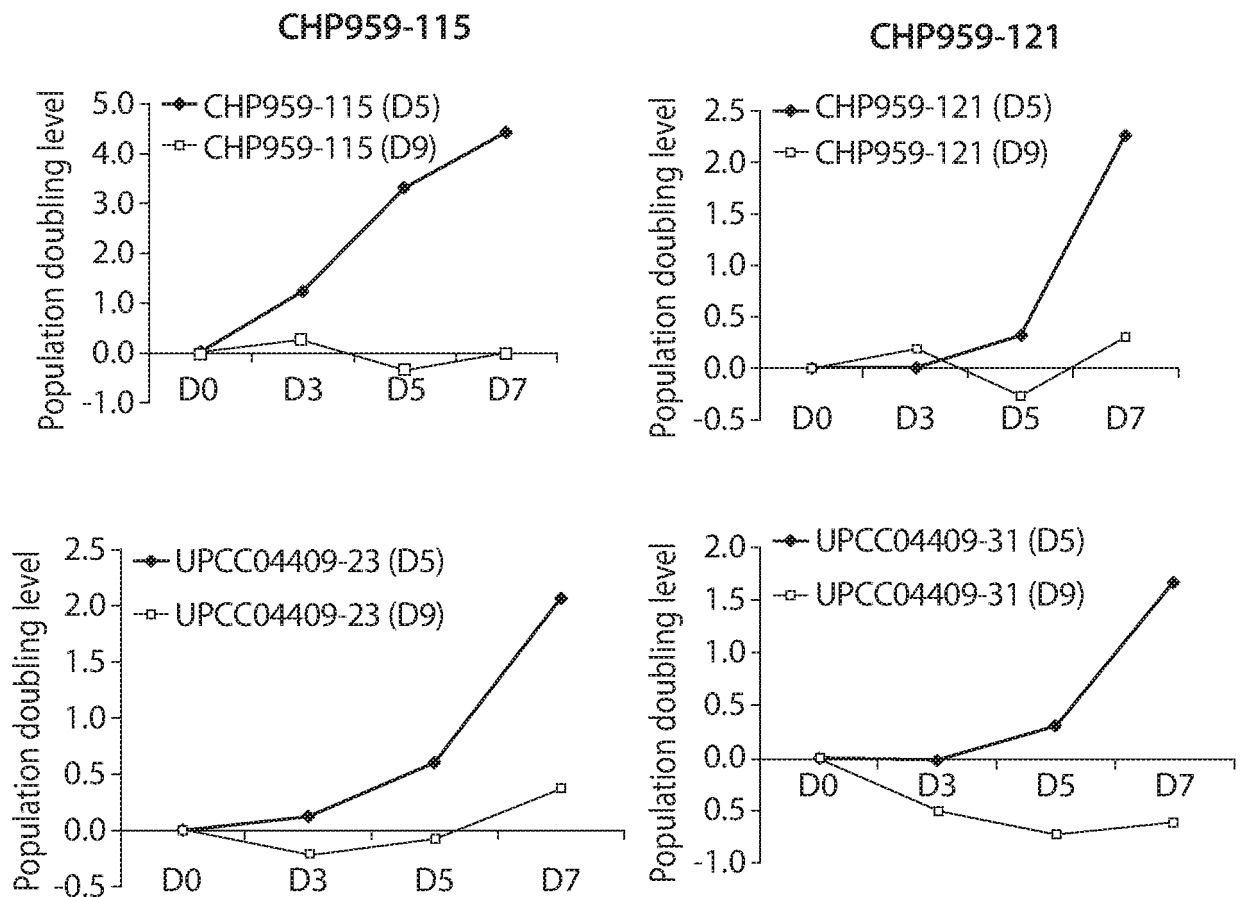


FIG. 17

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

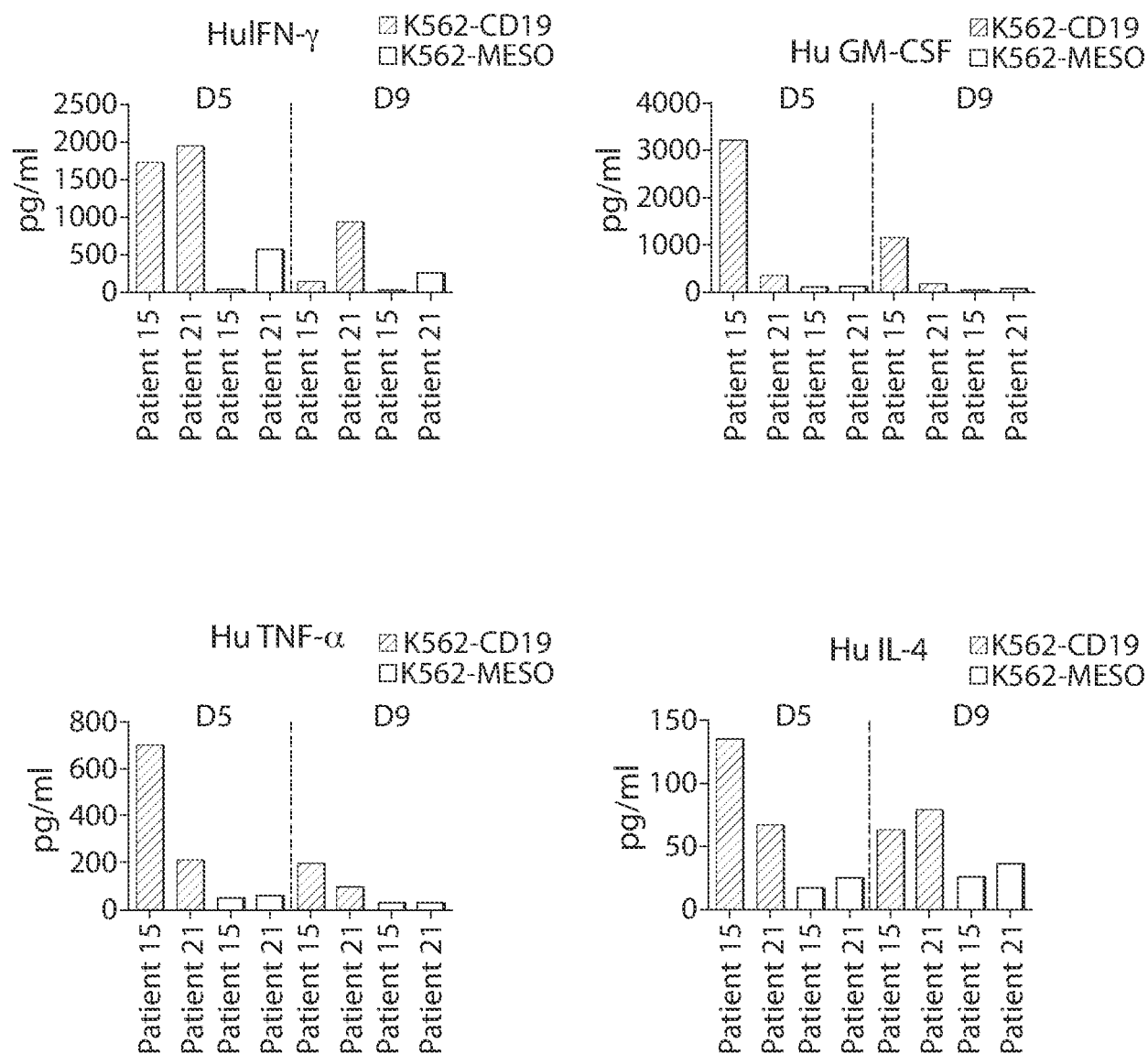
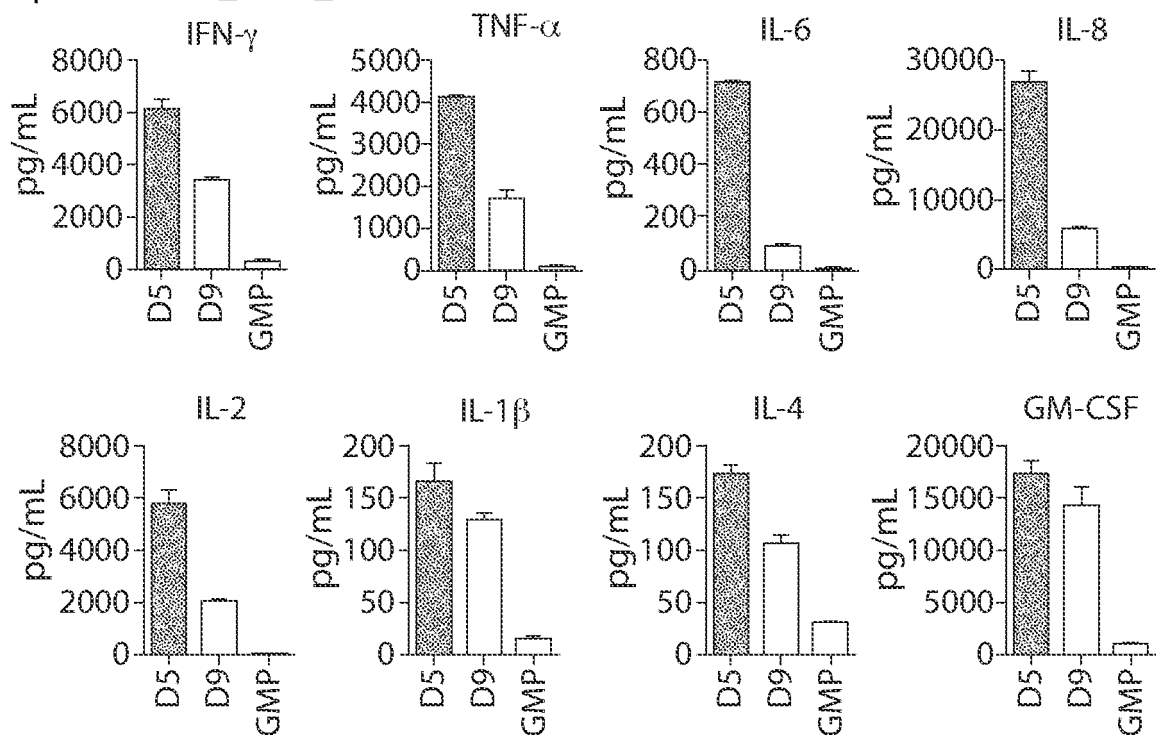


FIG. 18

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

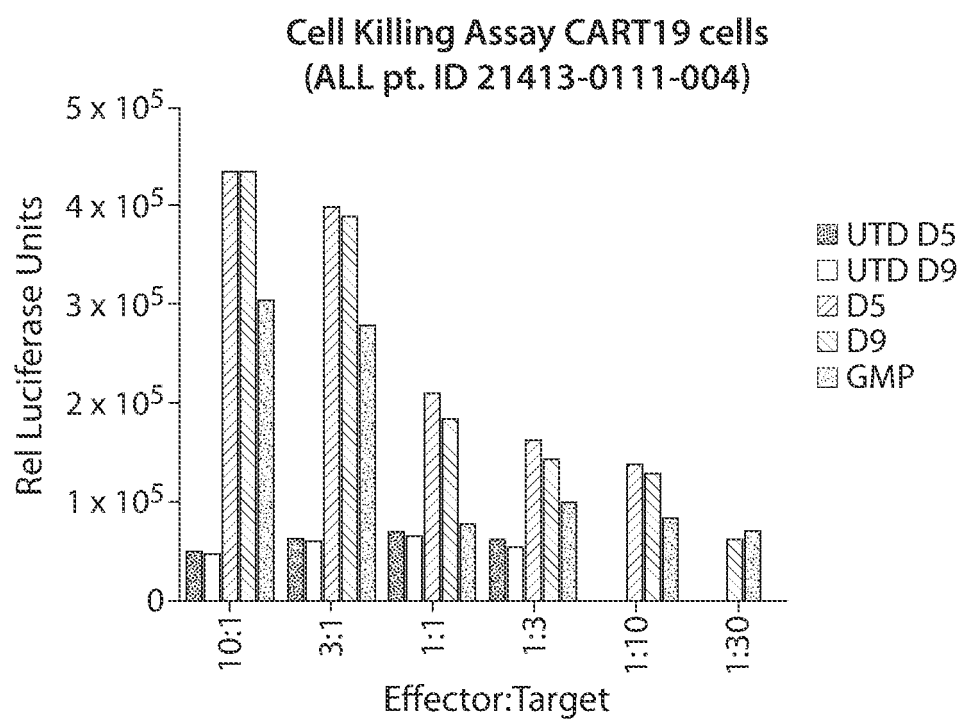
ALL pt. ID 21413_0111_004



- 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

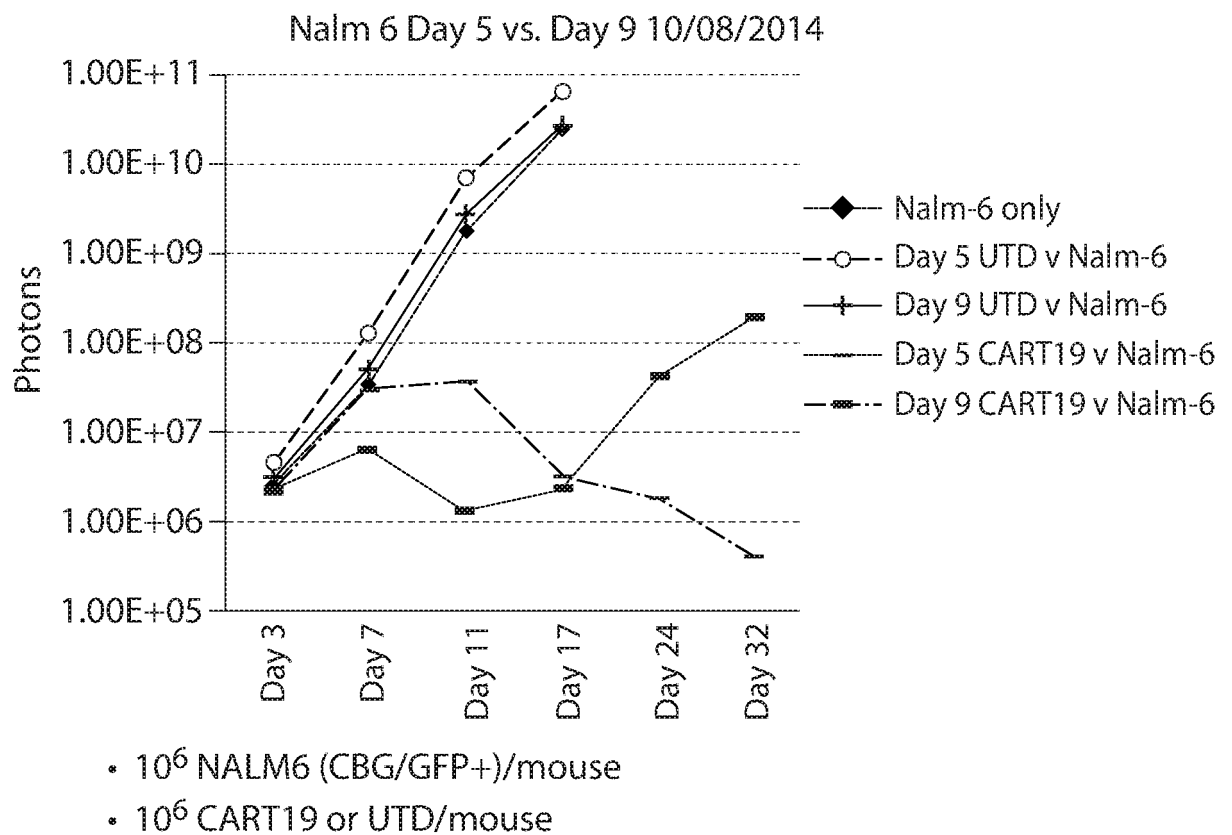


FIG. 21

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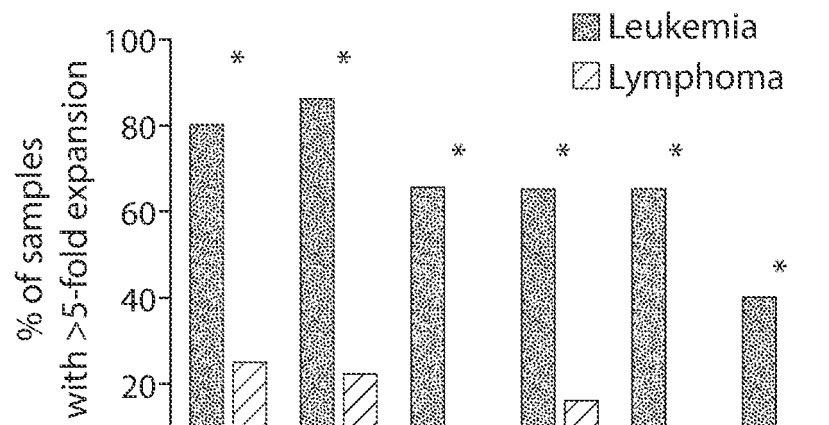


FIG. 22A

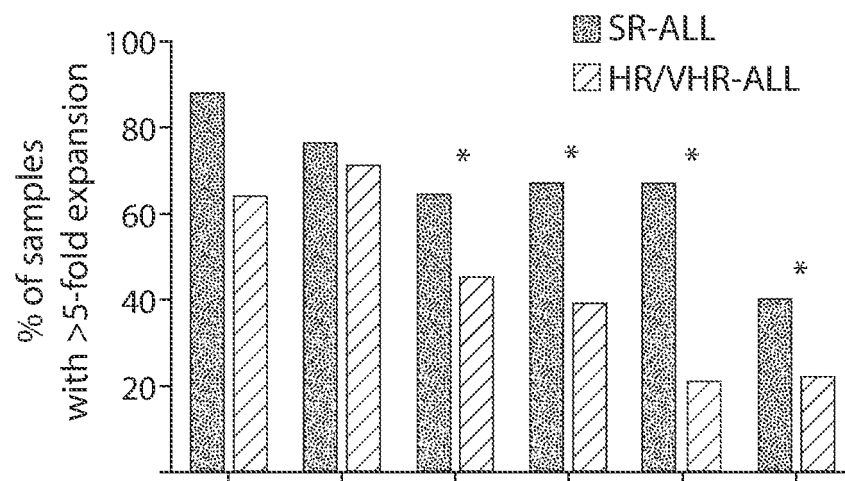


FIG. 22B

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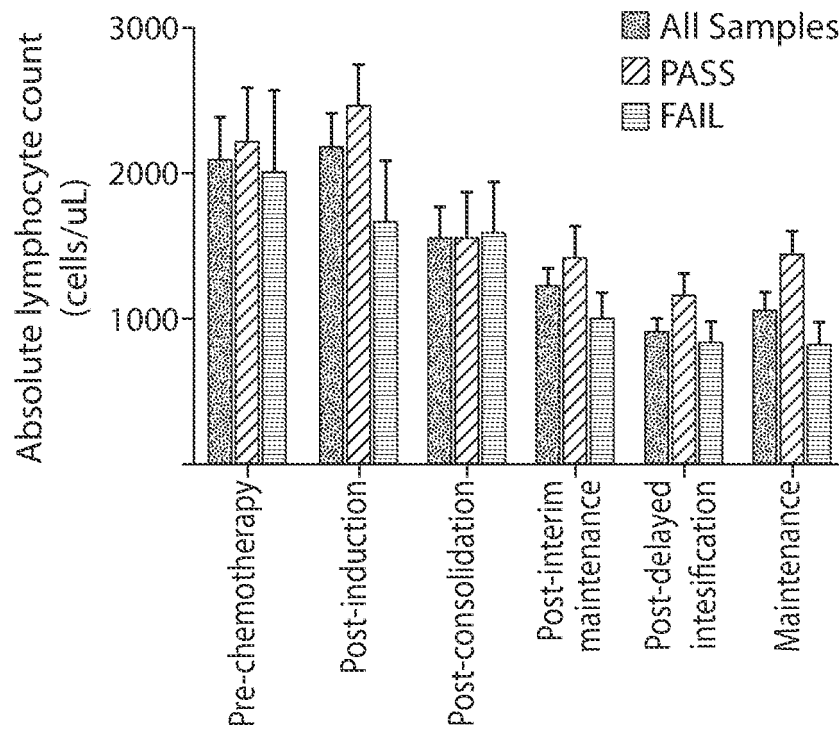


FIG. 22C

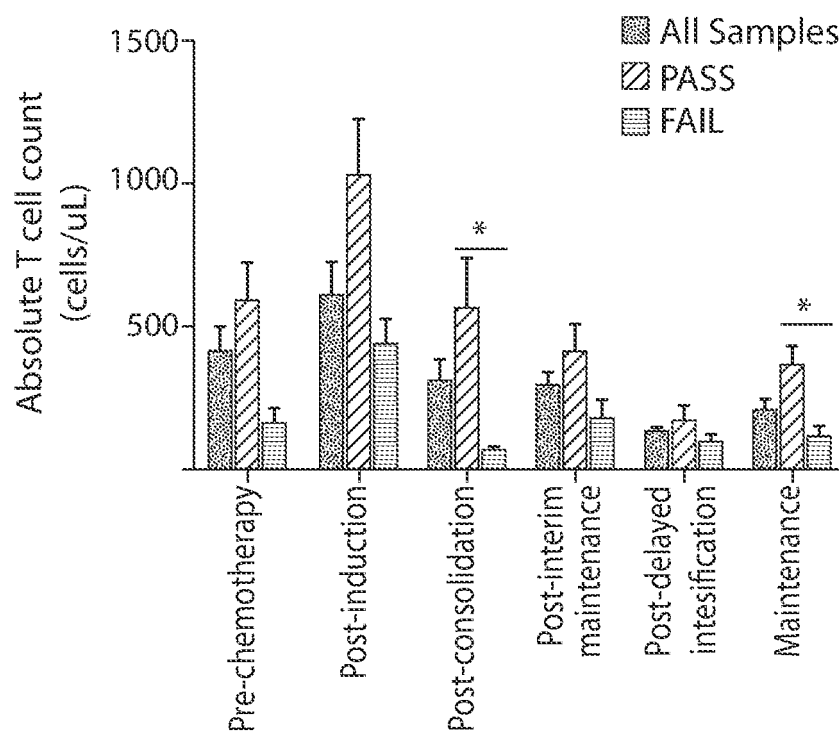
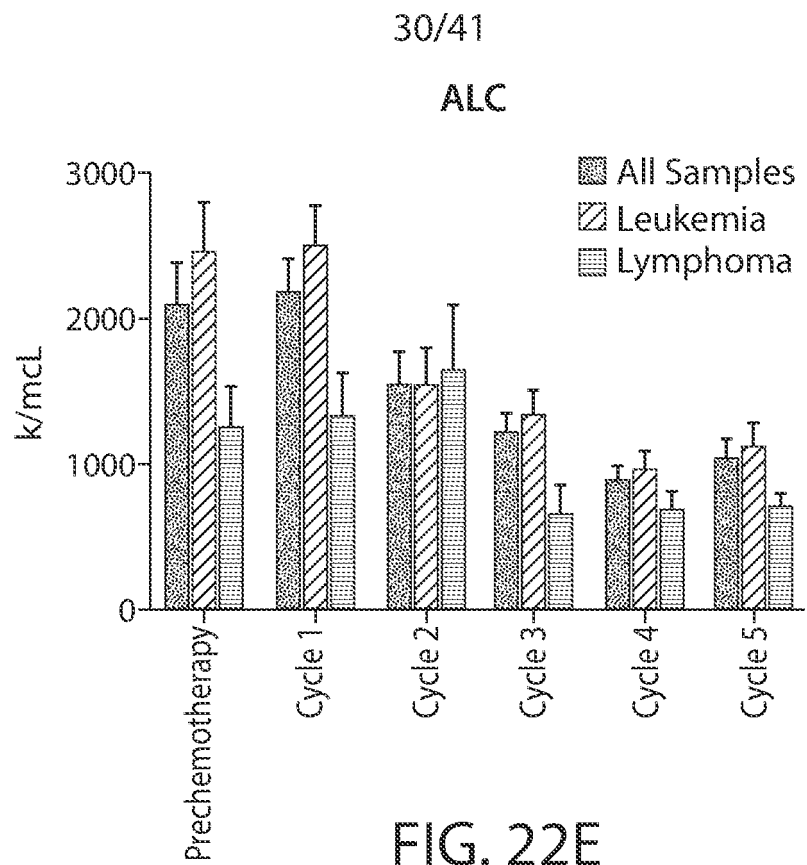
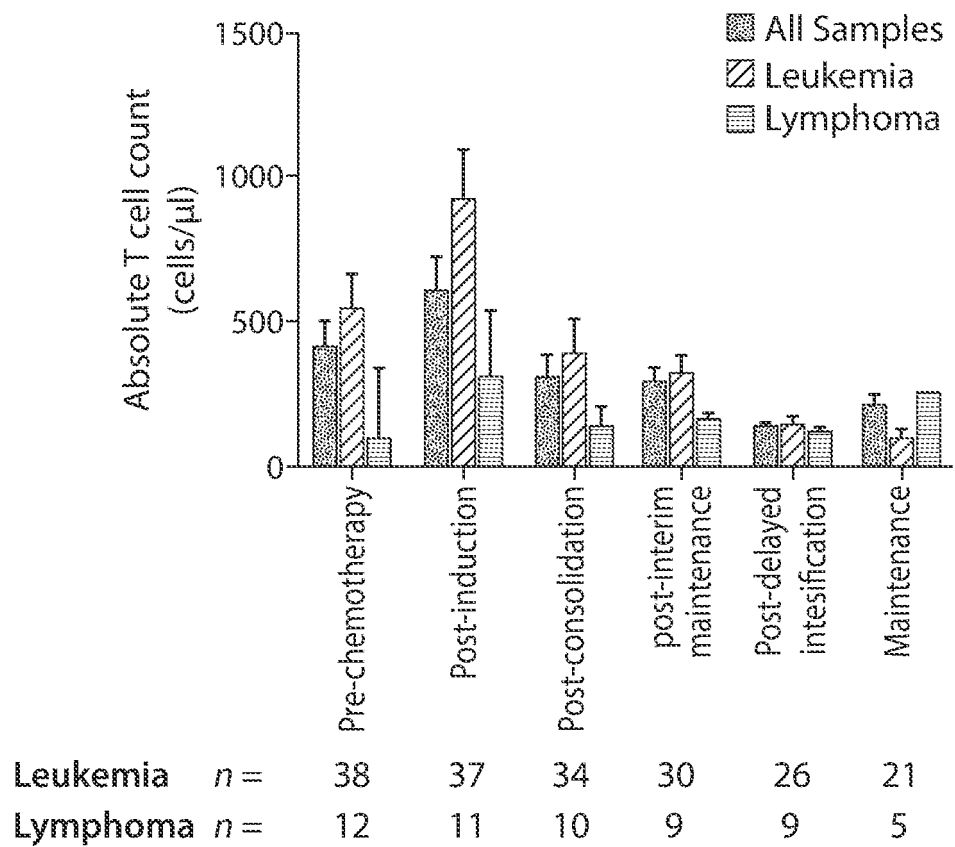


FIG. 22D



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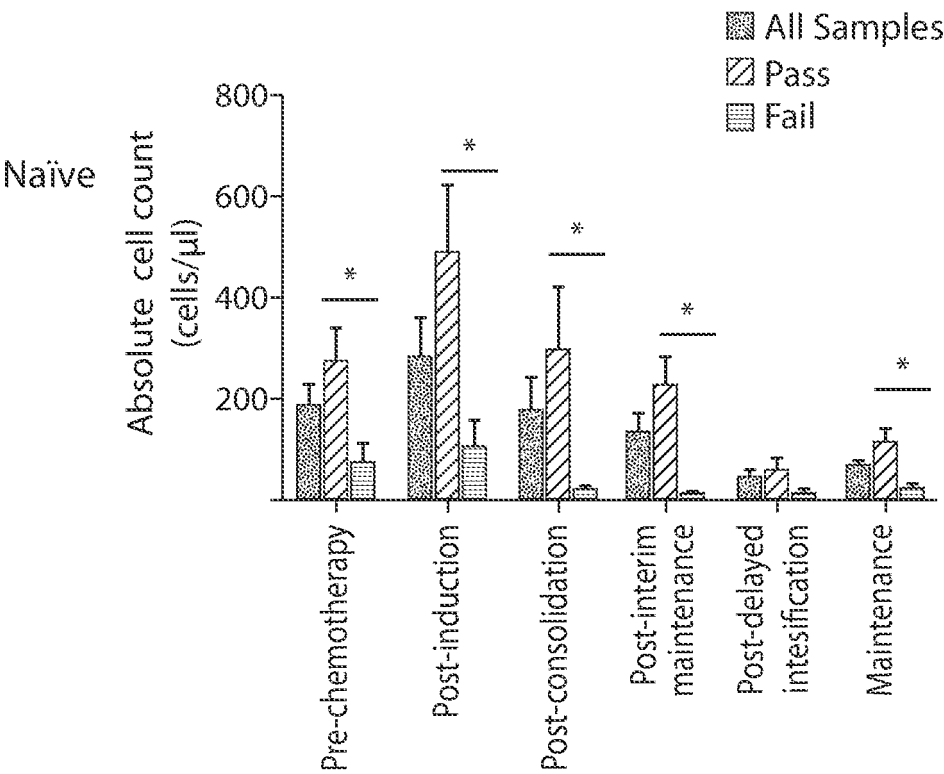


FIG. 23A

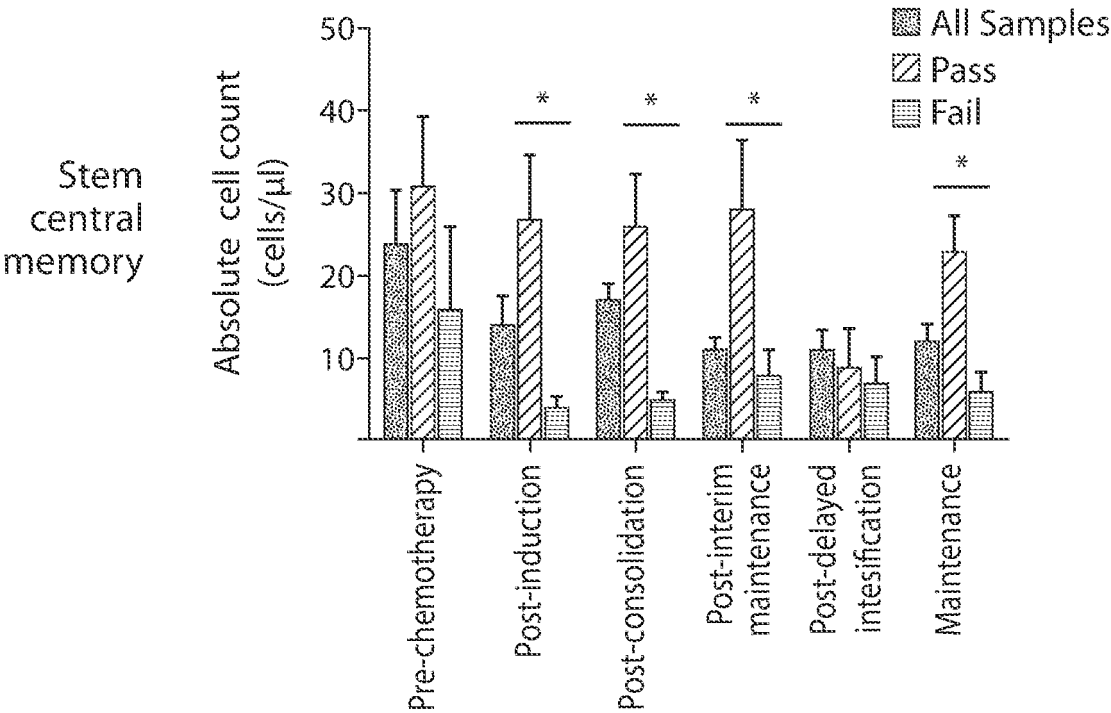


FIG. 23B

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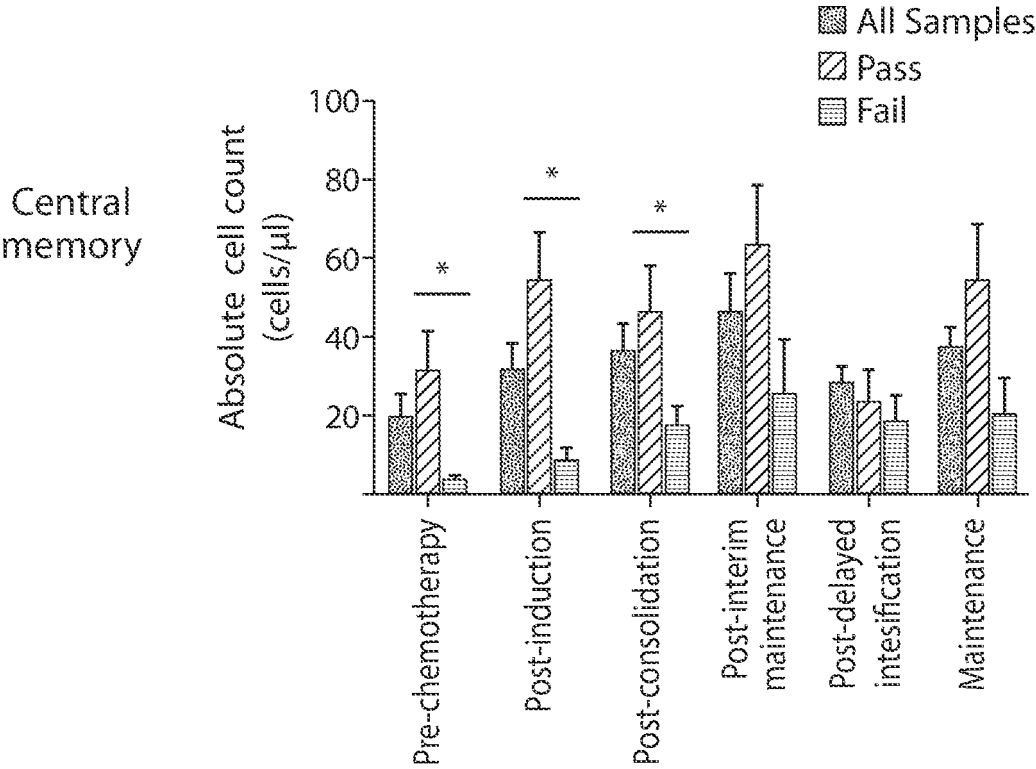


FIG. 23C

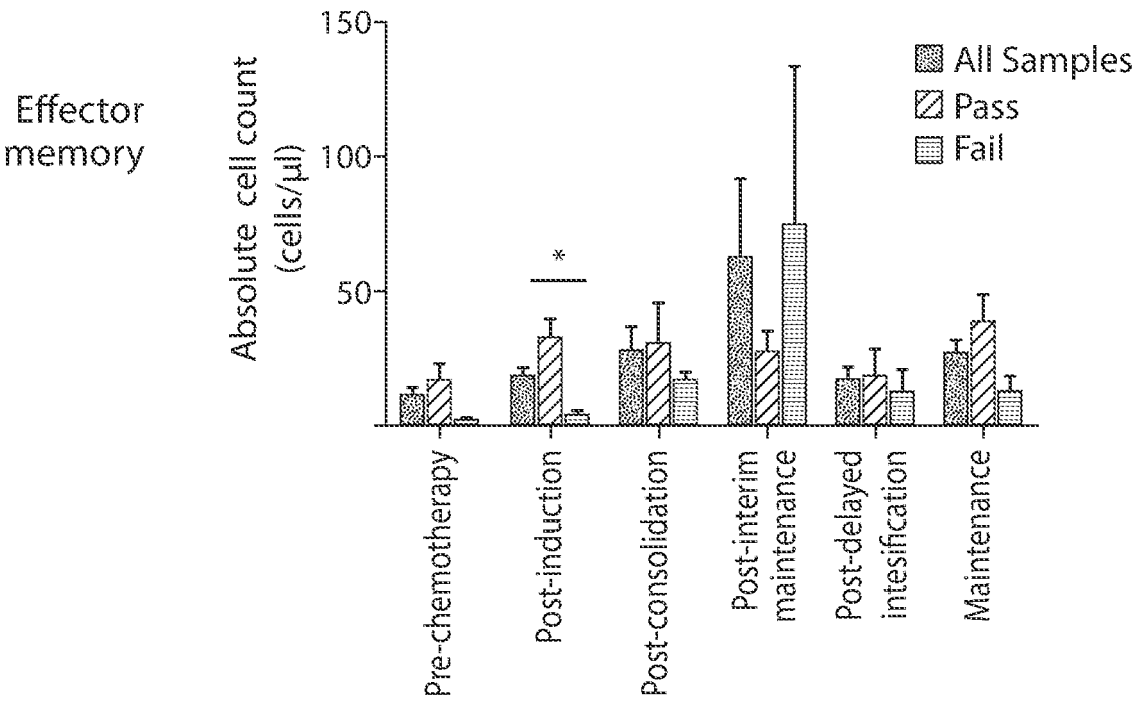


FIG. 23D

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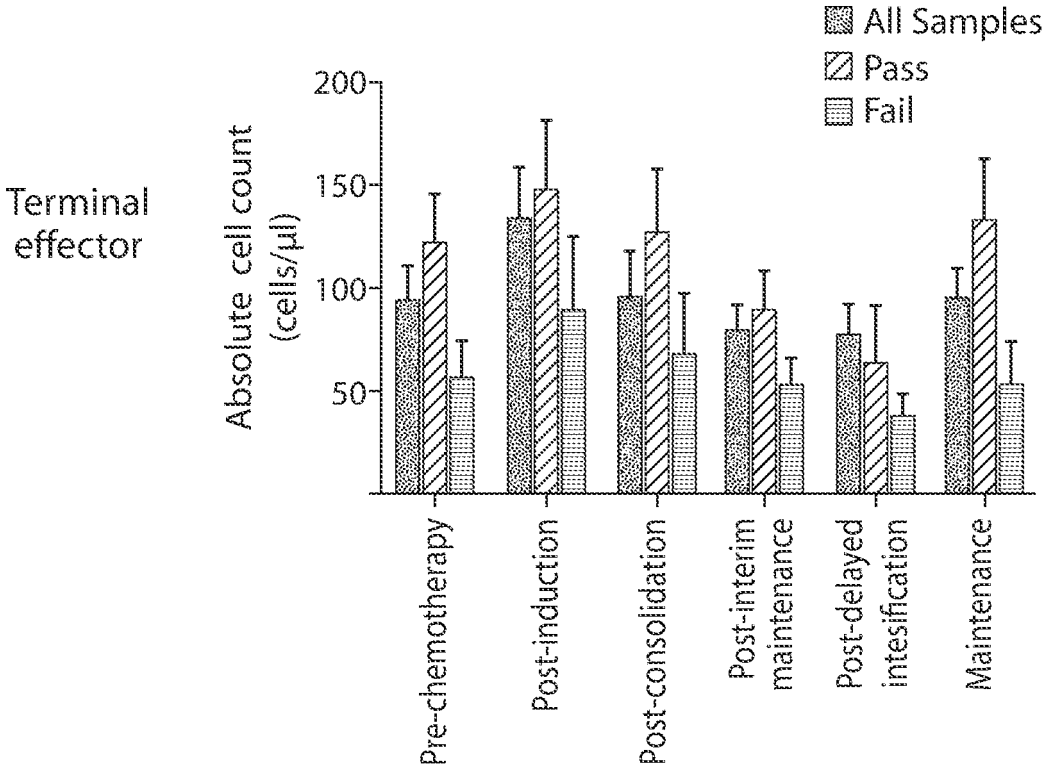


FIG. 23E

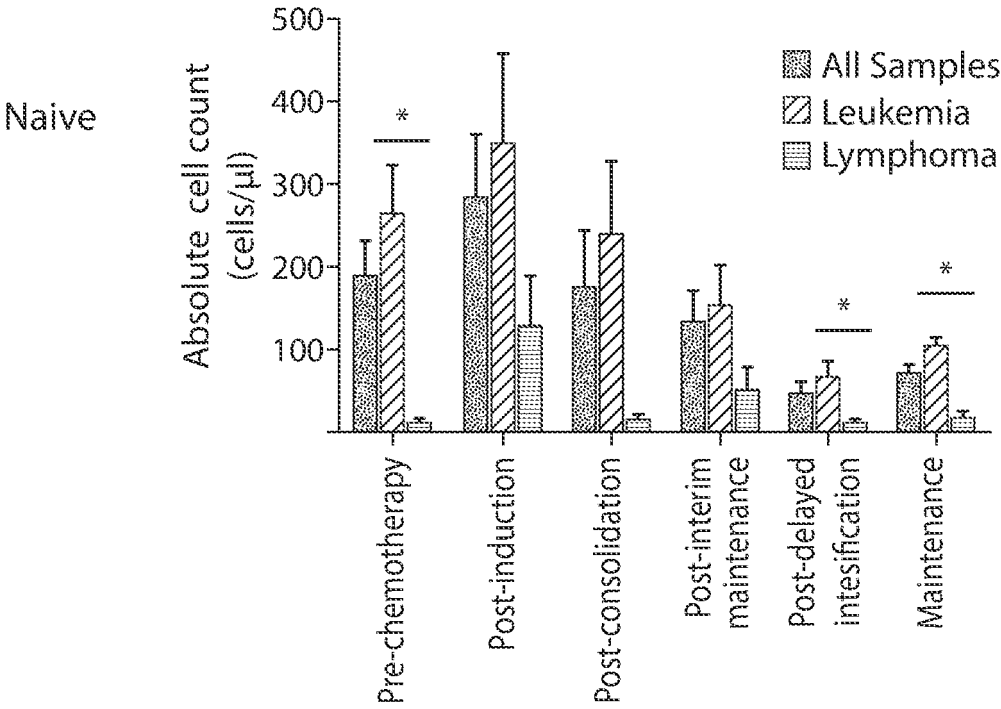


FIG. 23F

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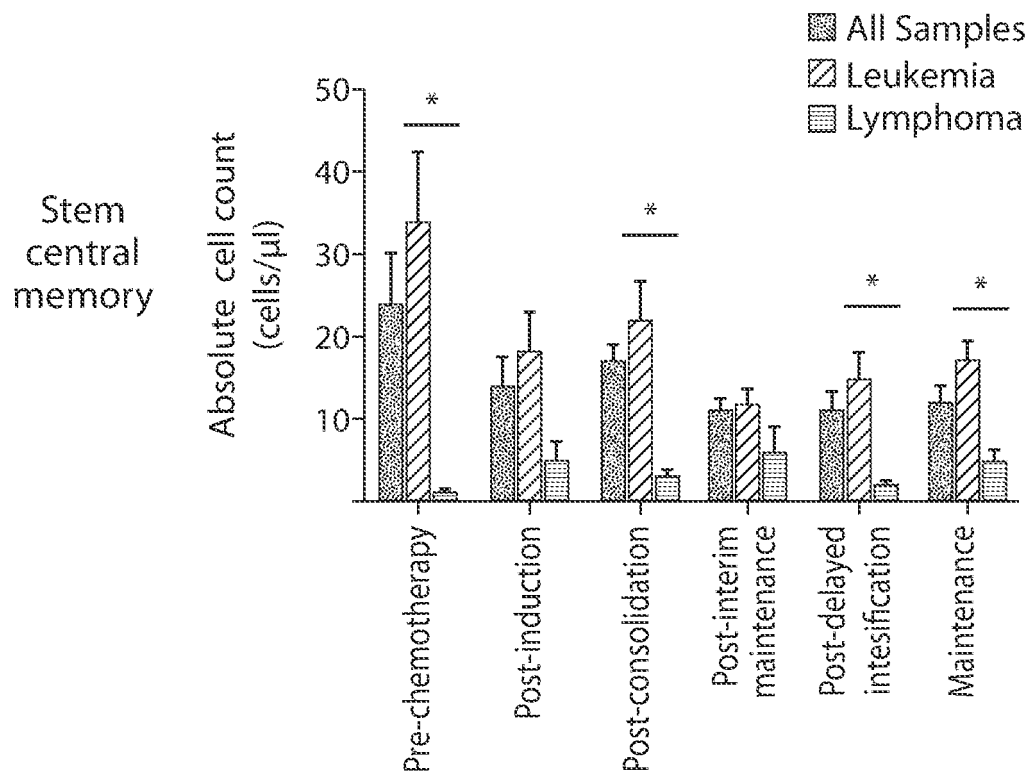


FIG. 23G

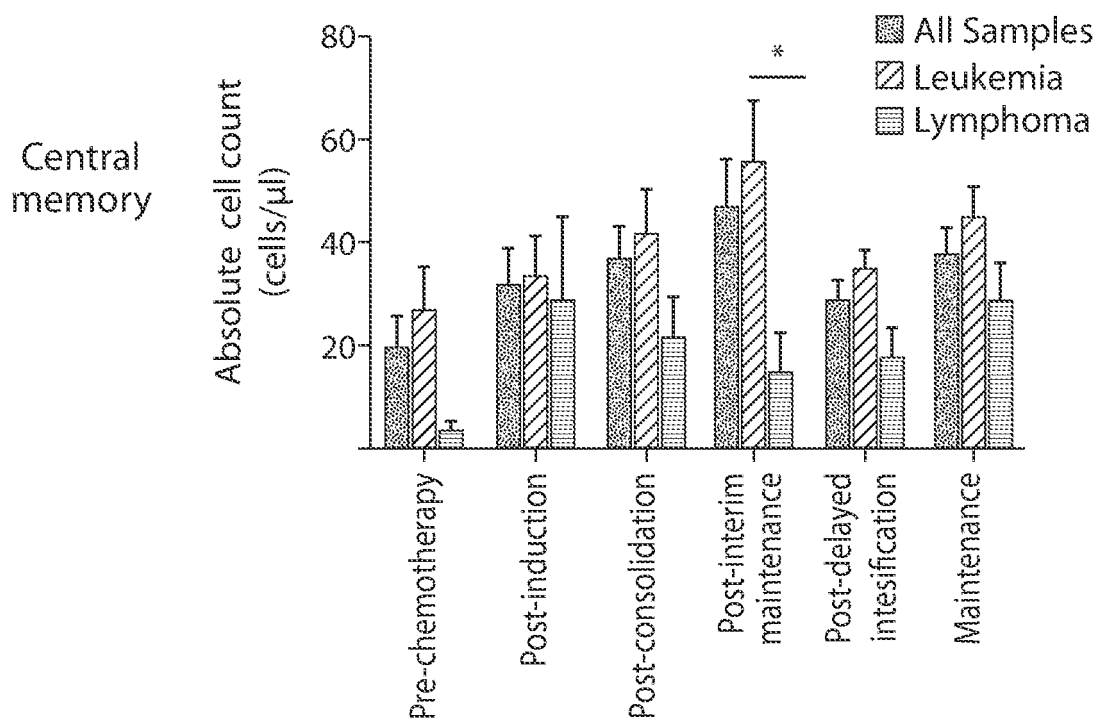


FIG. 23H

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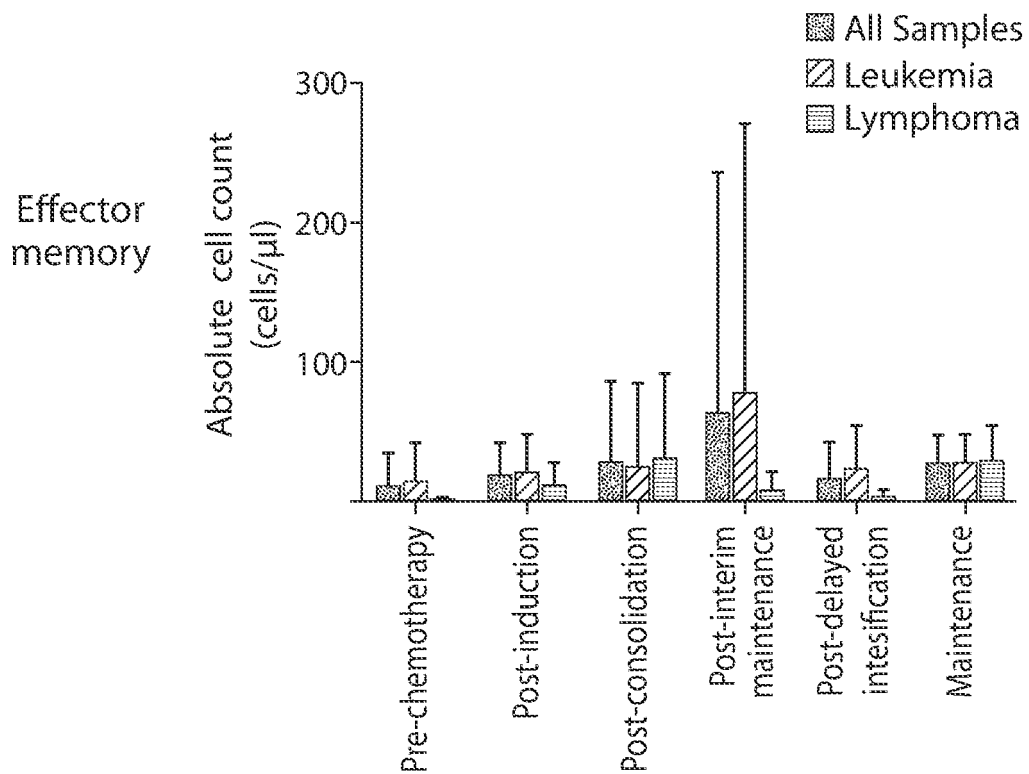


FIG. 23I

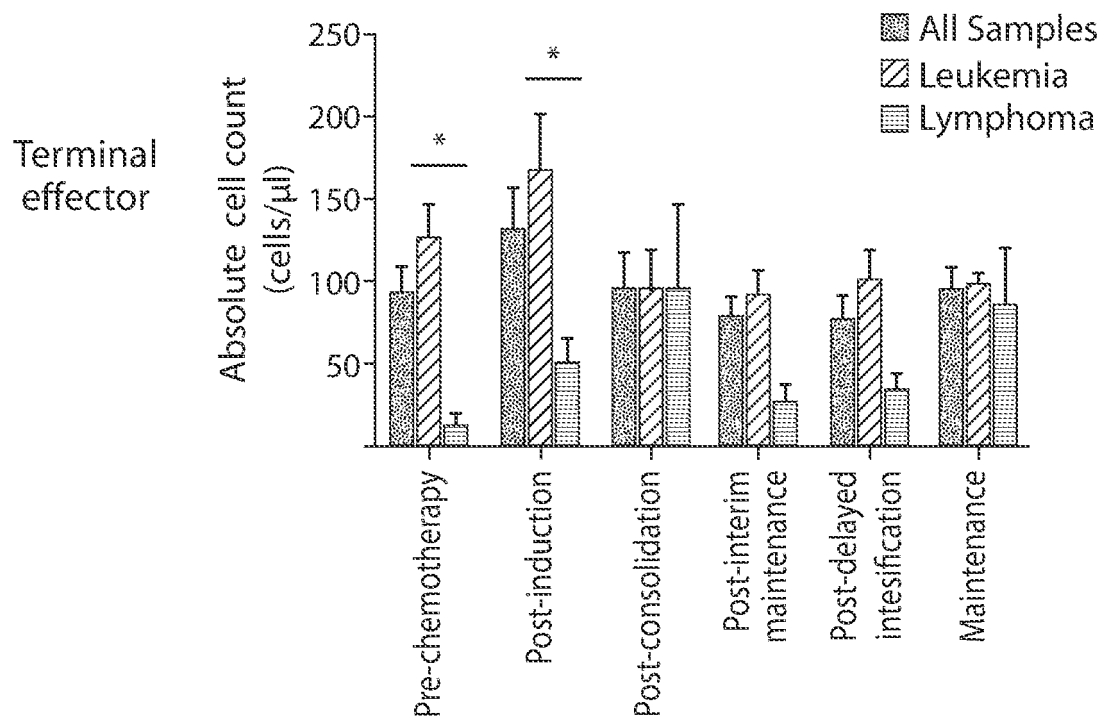


FIG. 23J

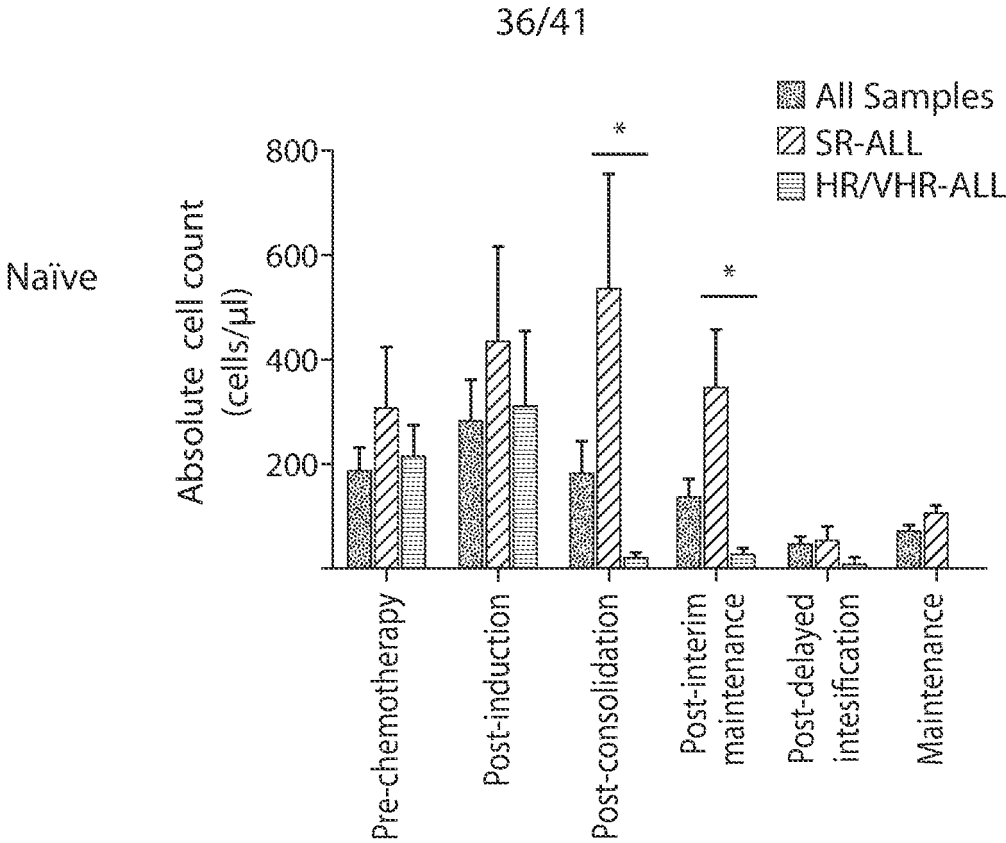


FIG. 23K

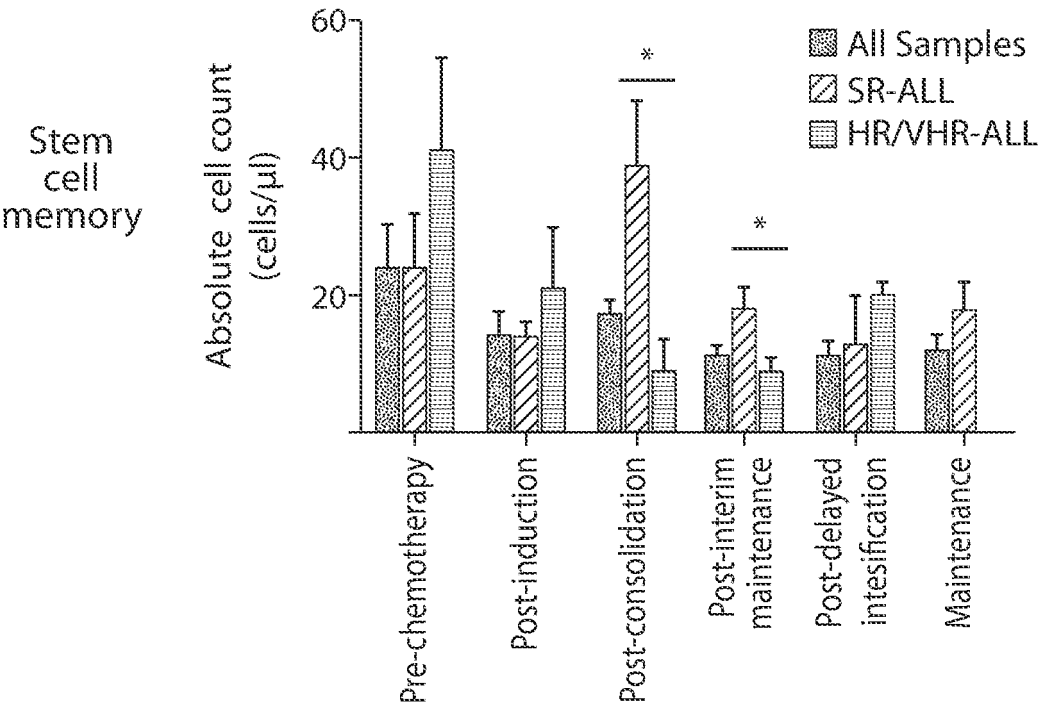


FIG. 23L

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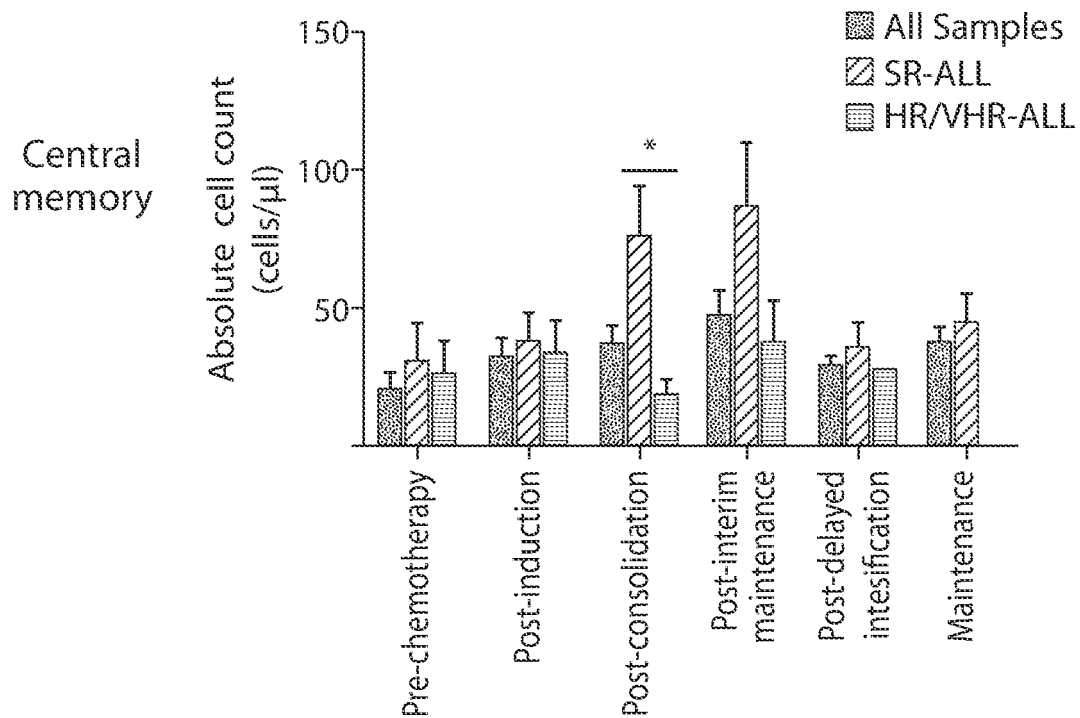


FIG. 23M

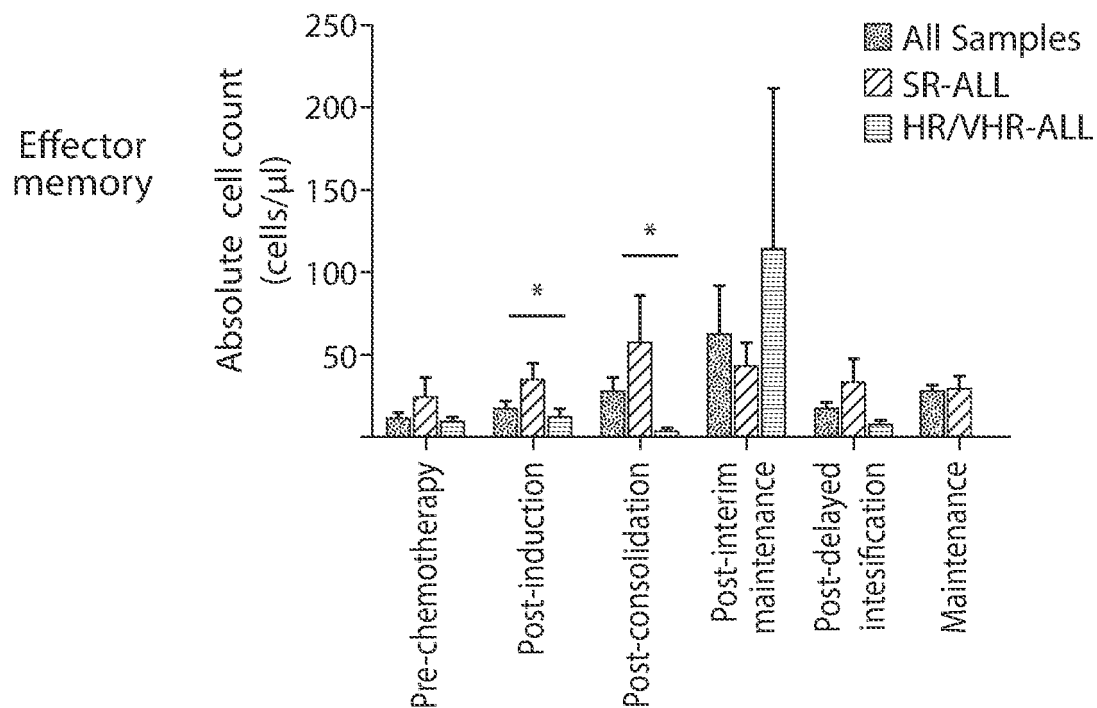


FIG. 23N

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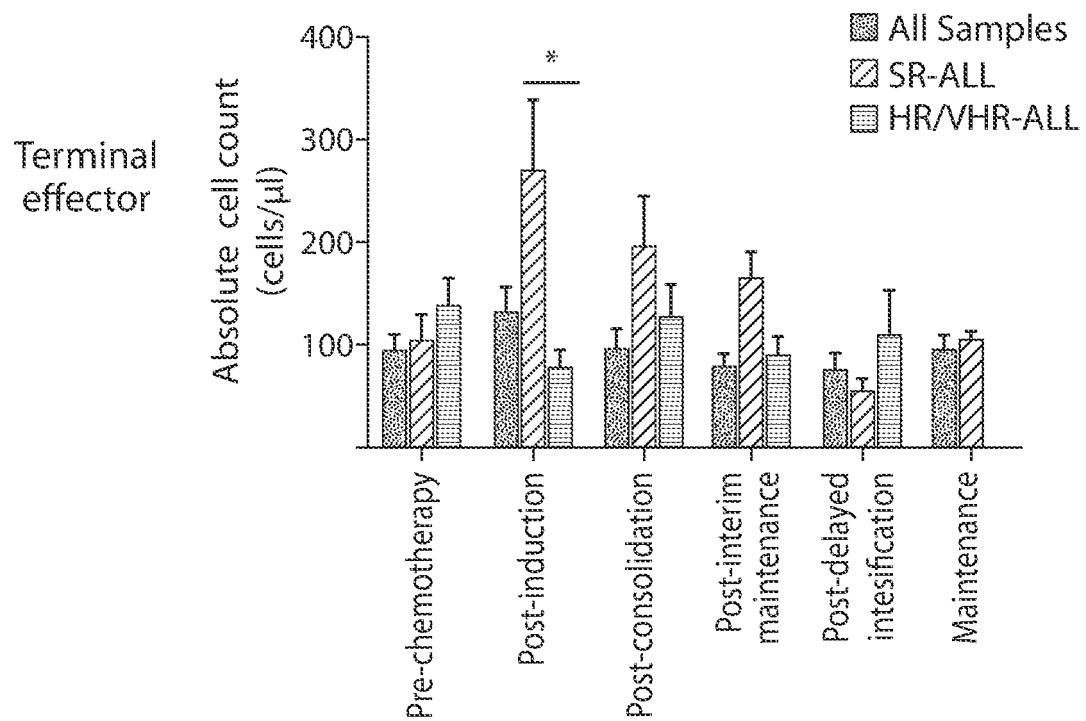


FIG. 230

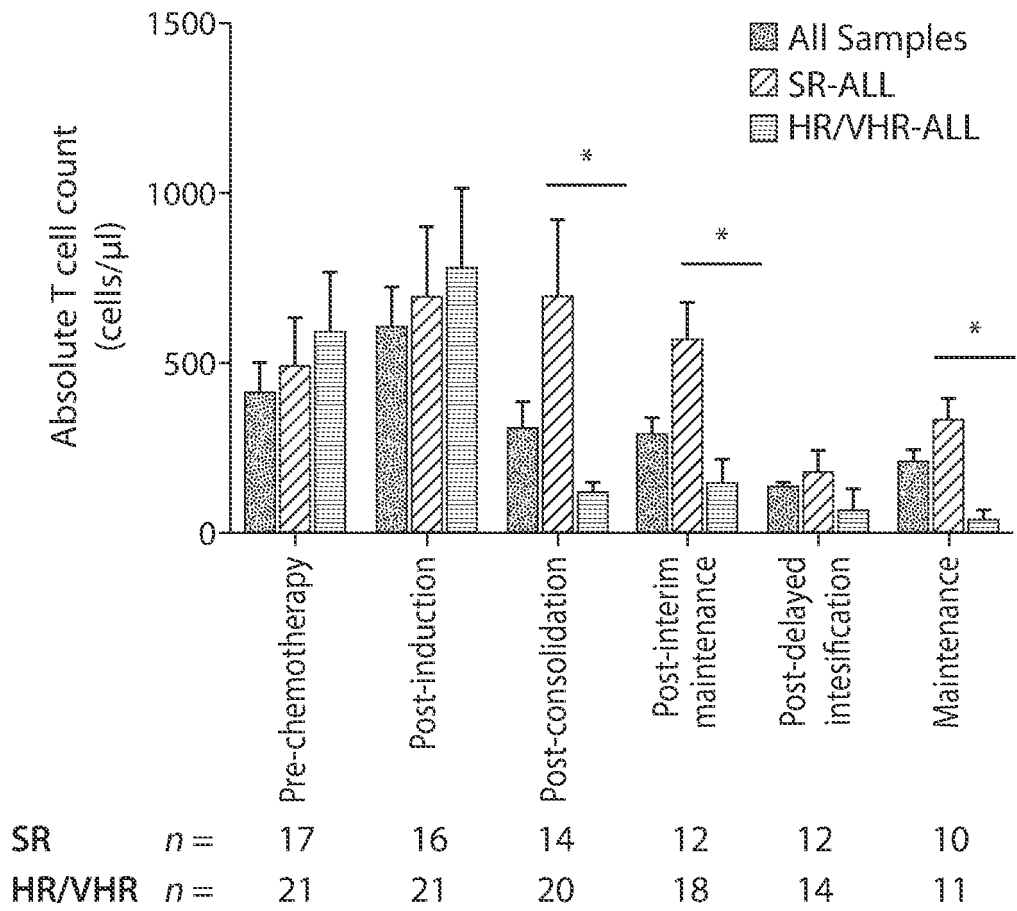


FIG. 24

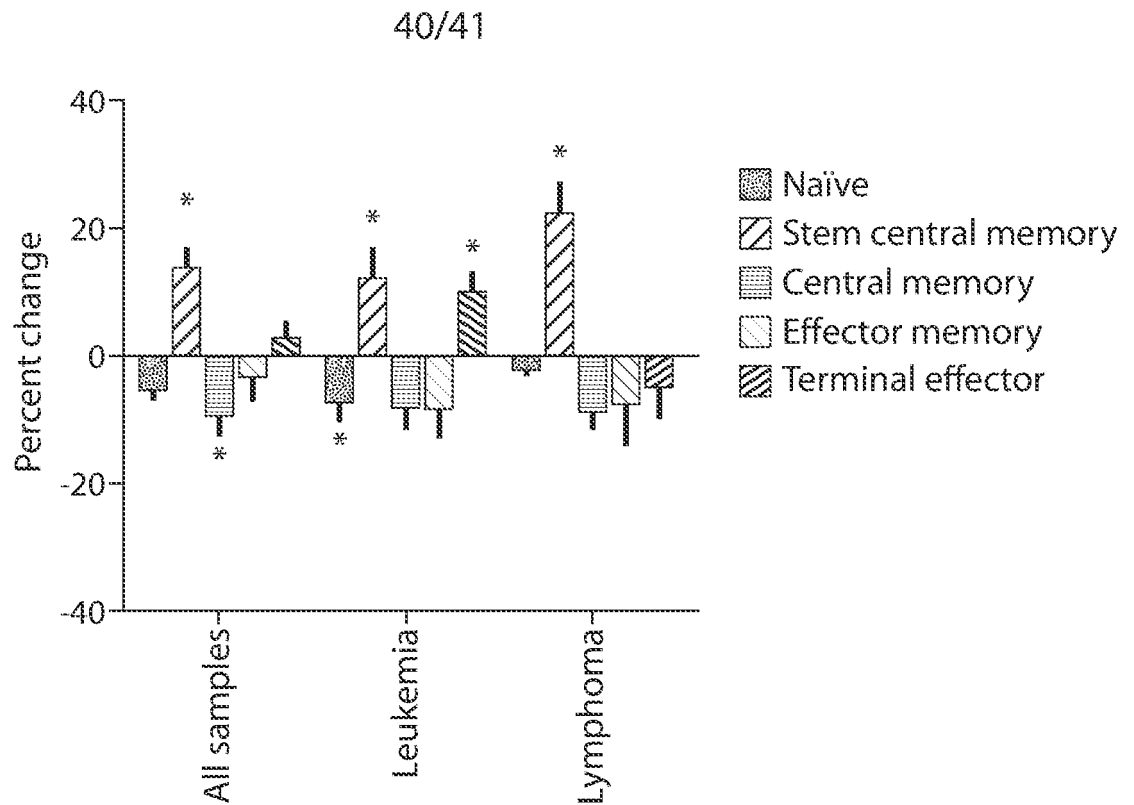


FIG. 25A

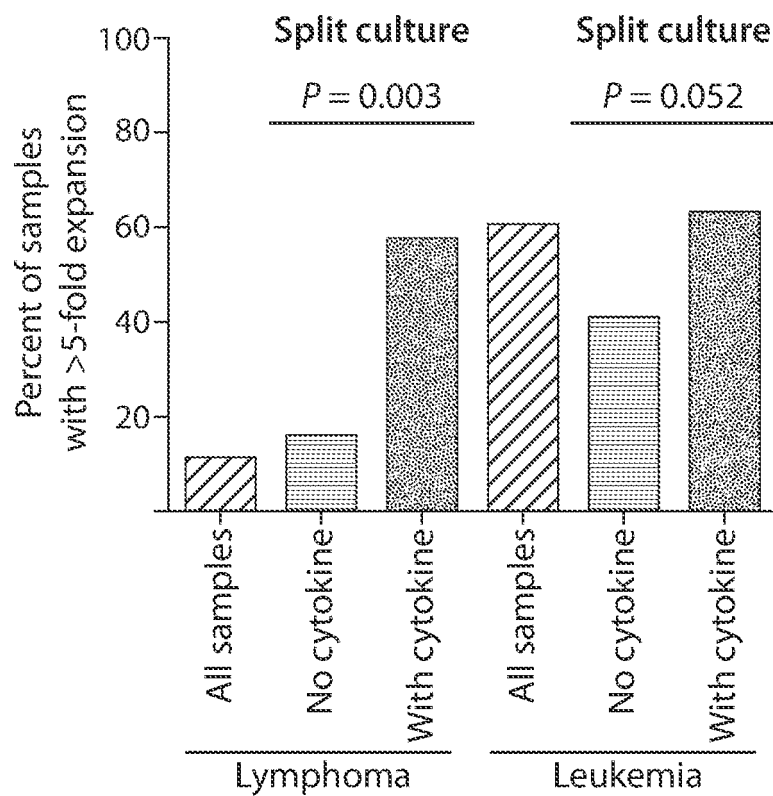


FIG. 25B

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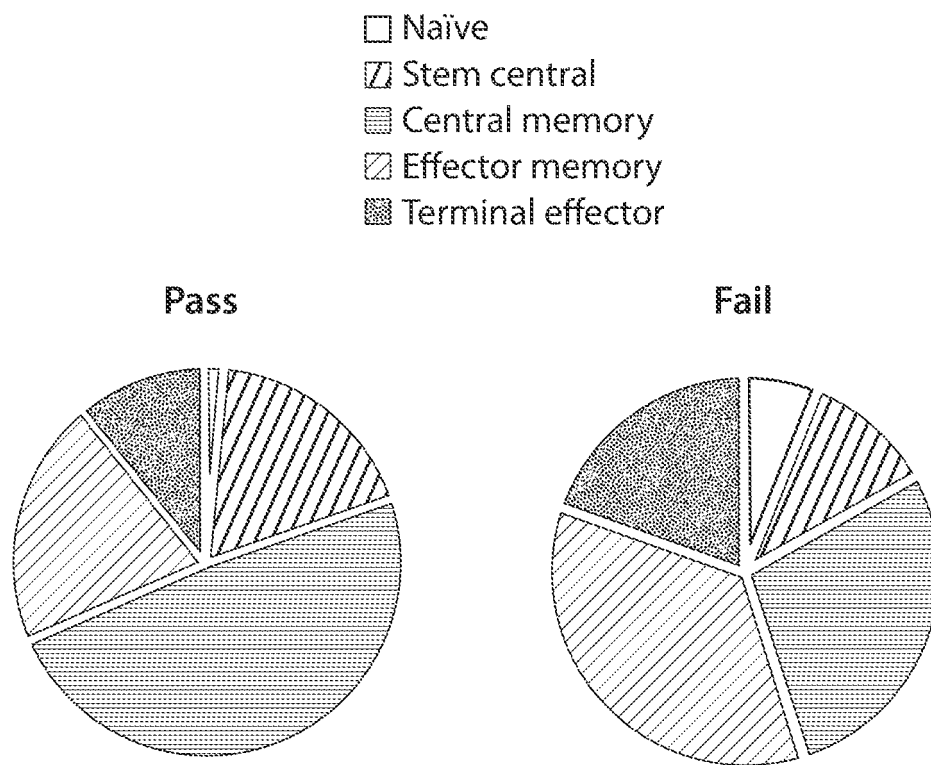


FIG. 26