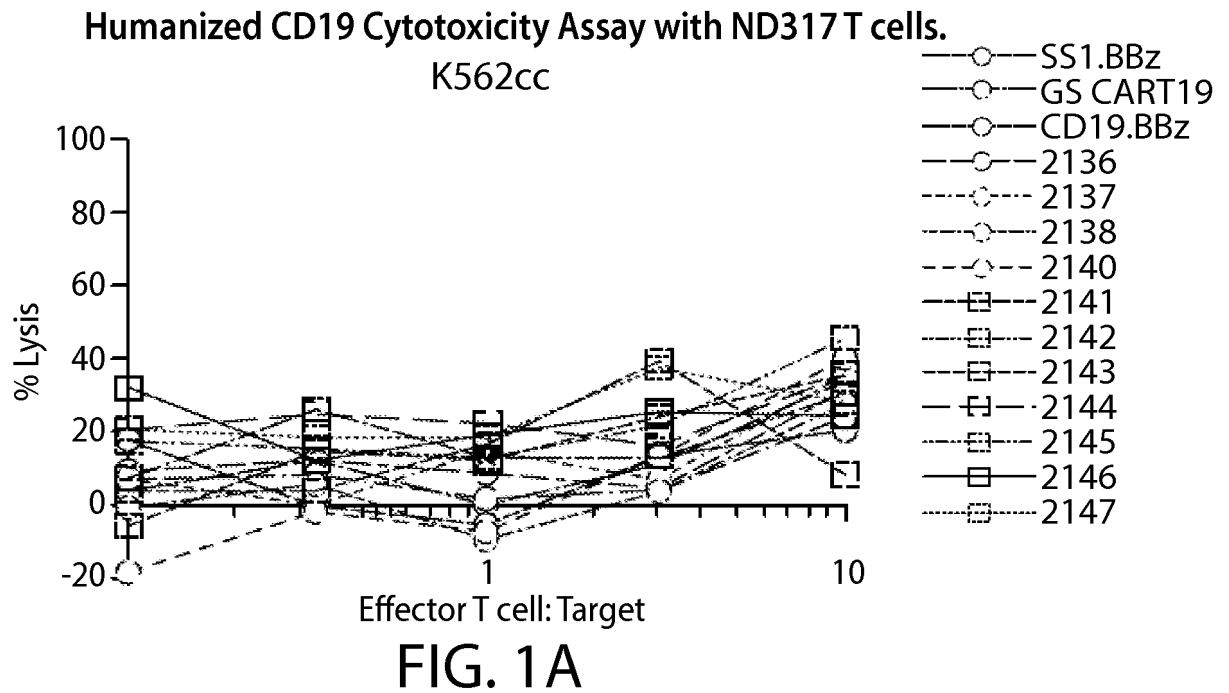
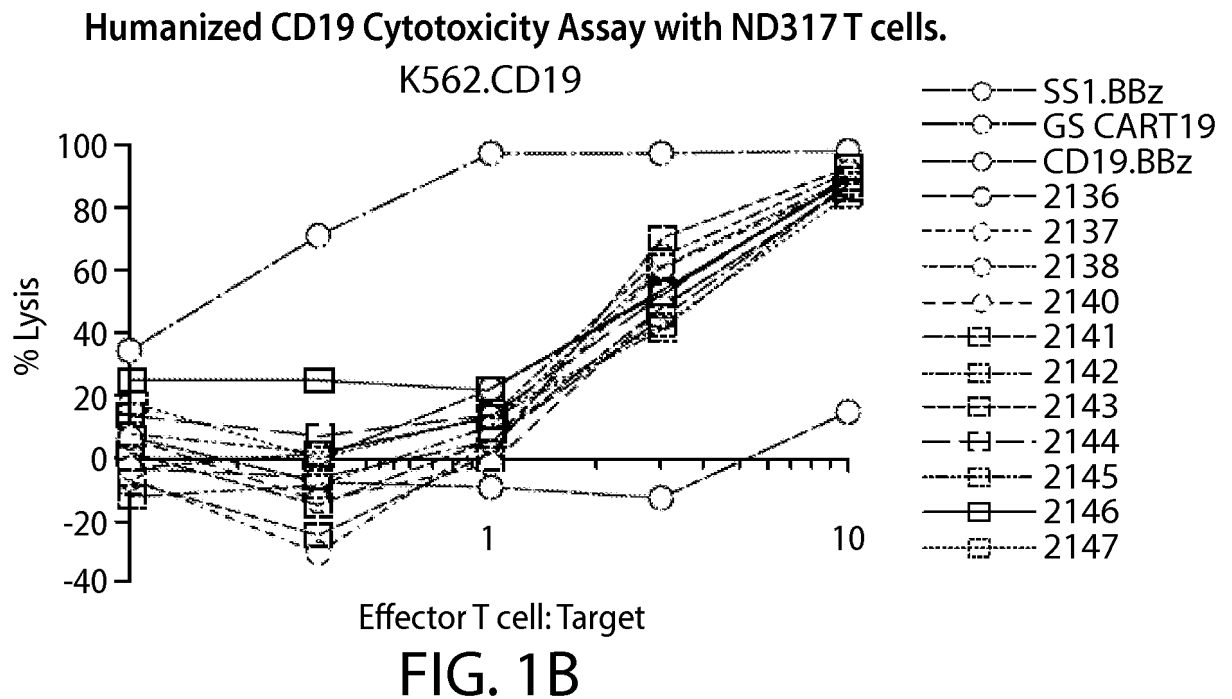




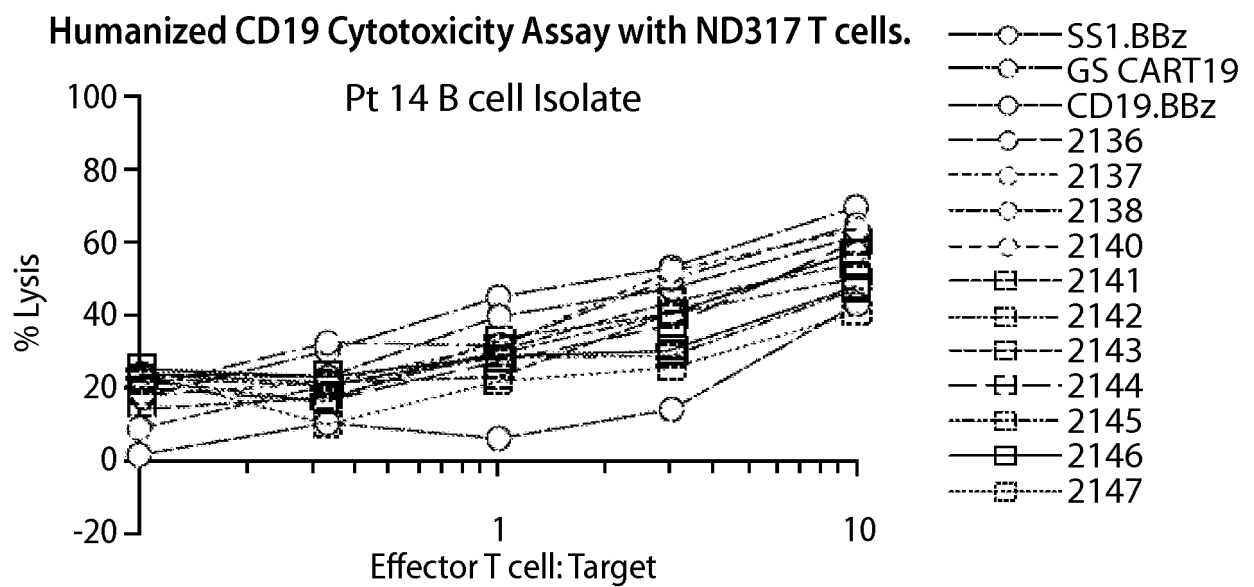


FIG. 1C

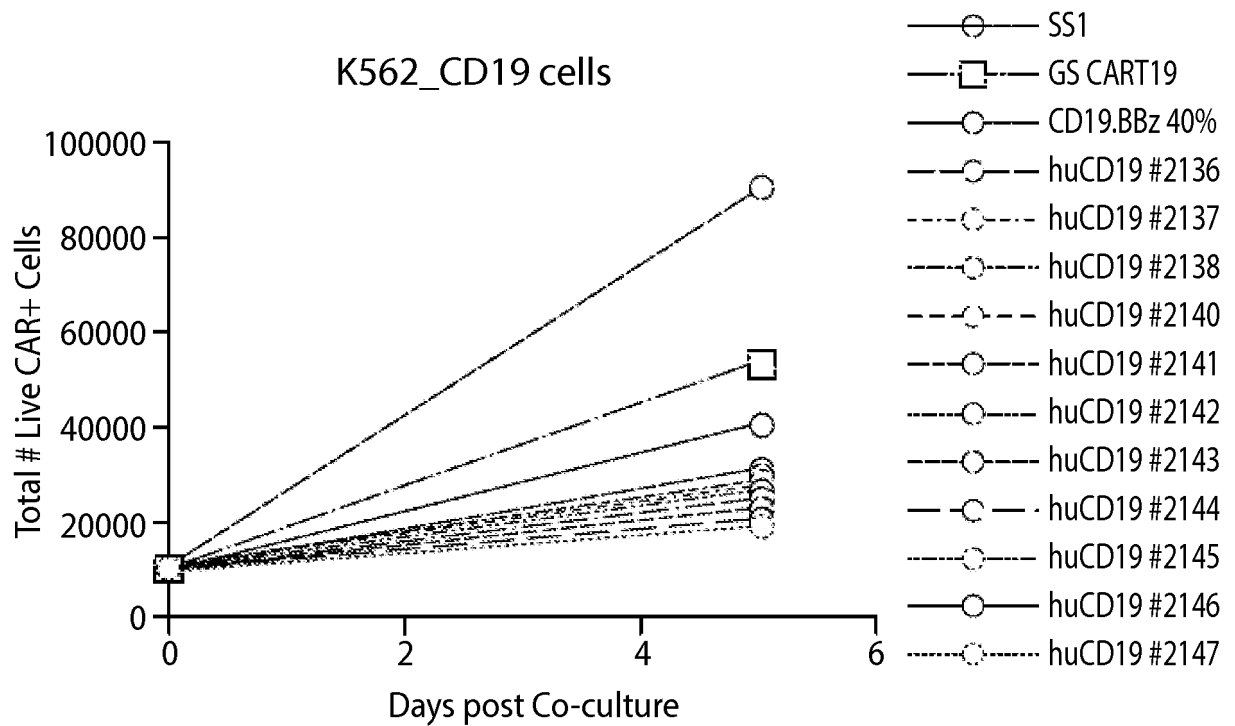


FIG. 2A

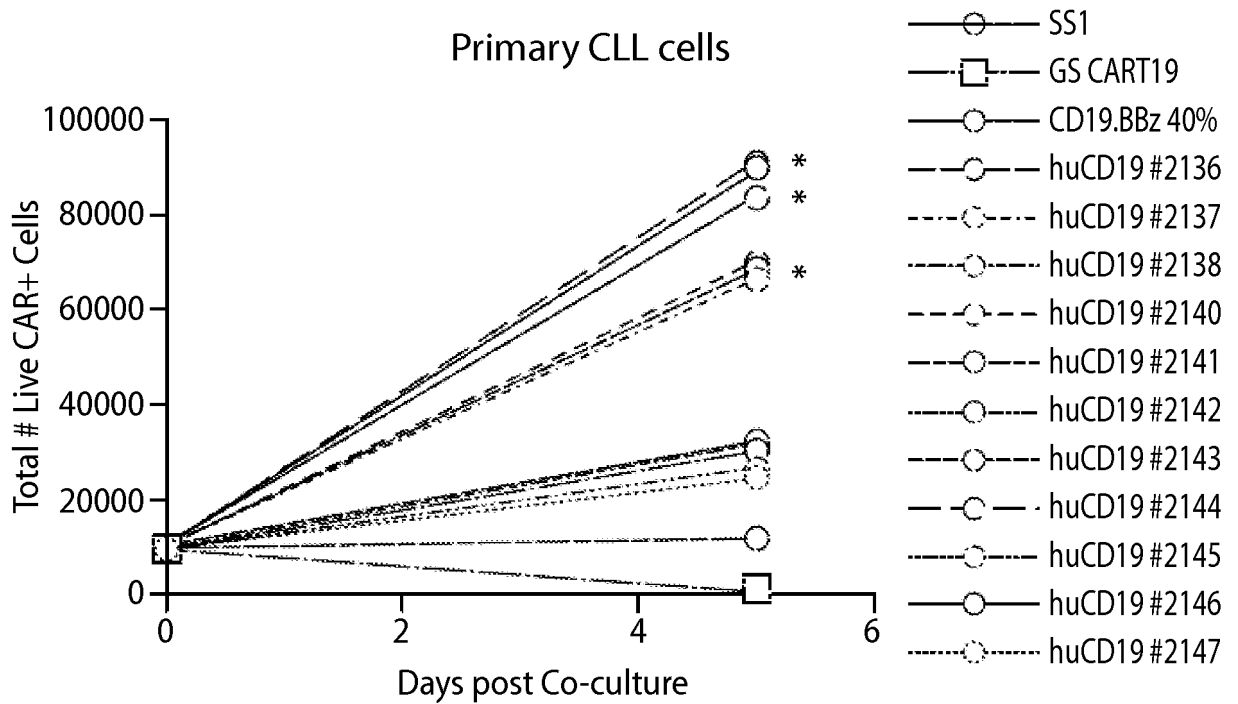


FIG. 2B

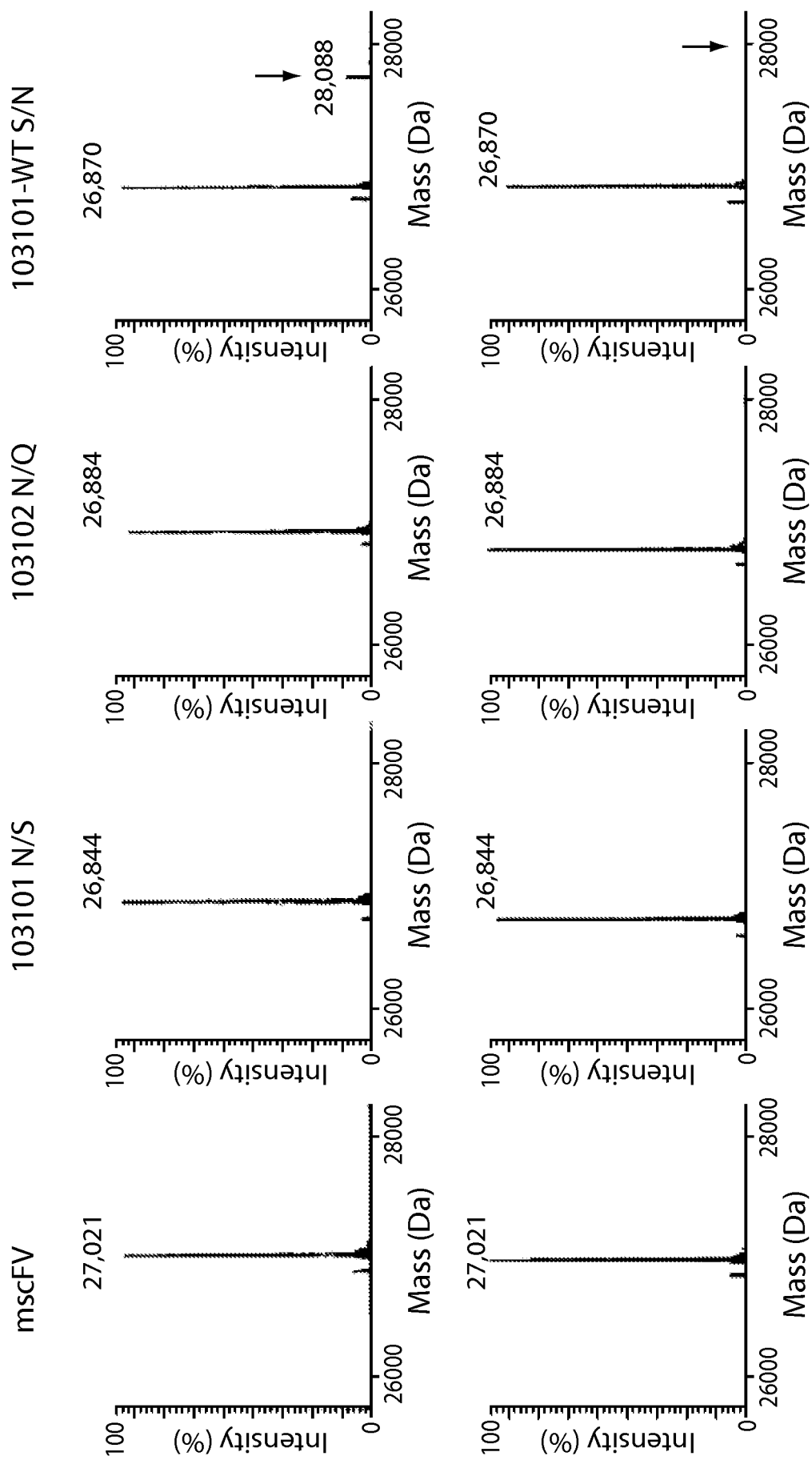


FIG. 3

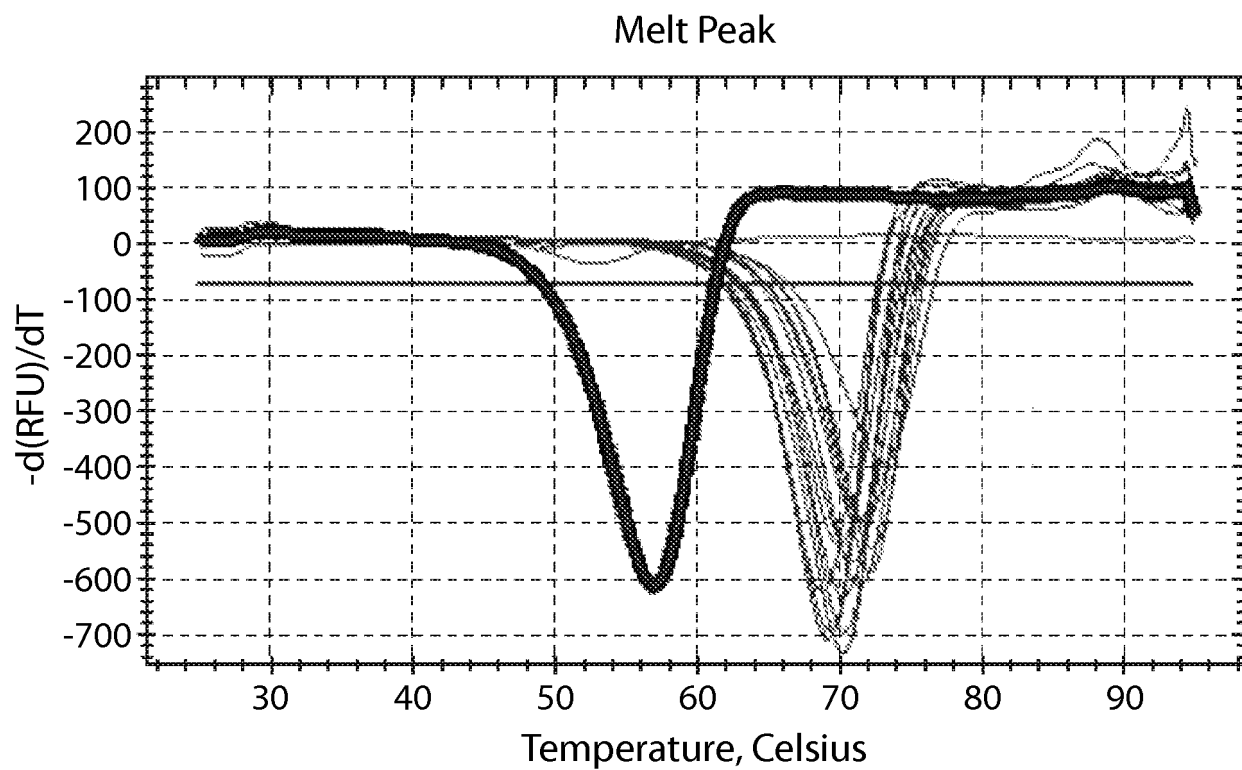
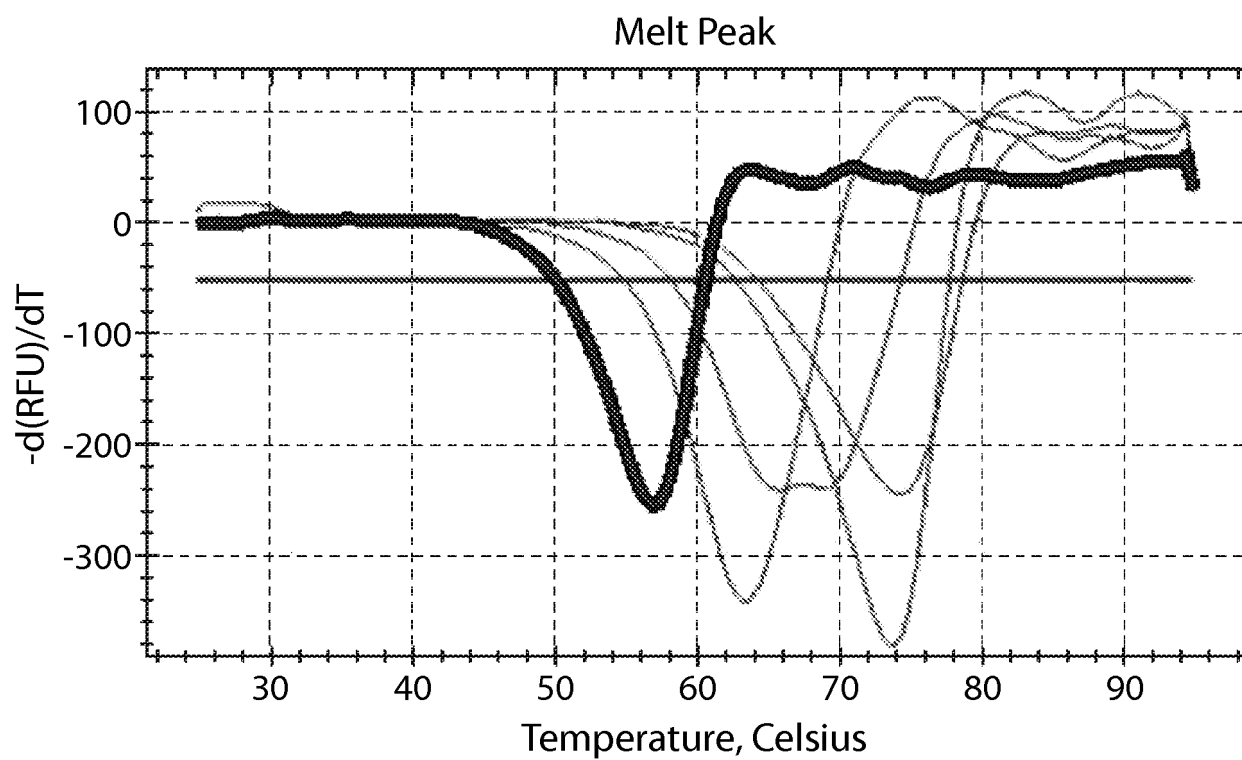


FIG. 4

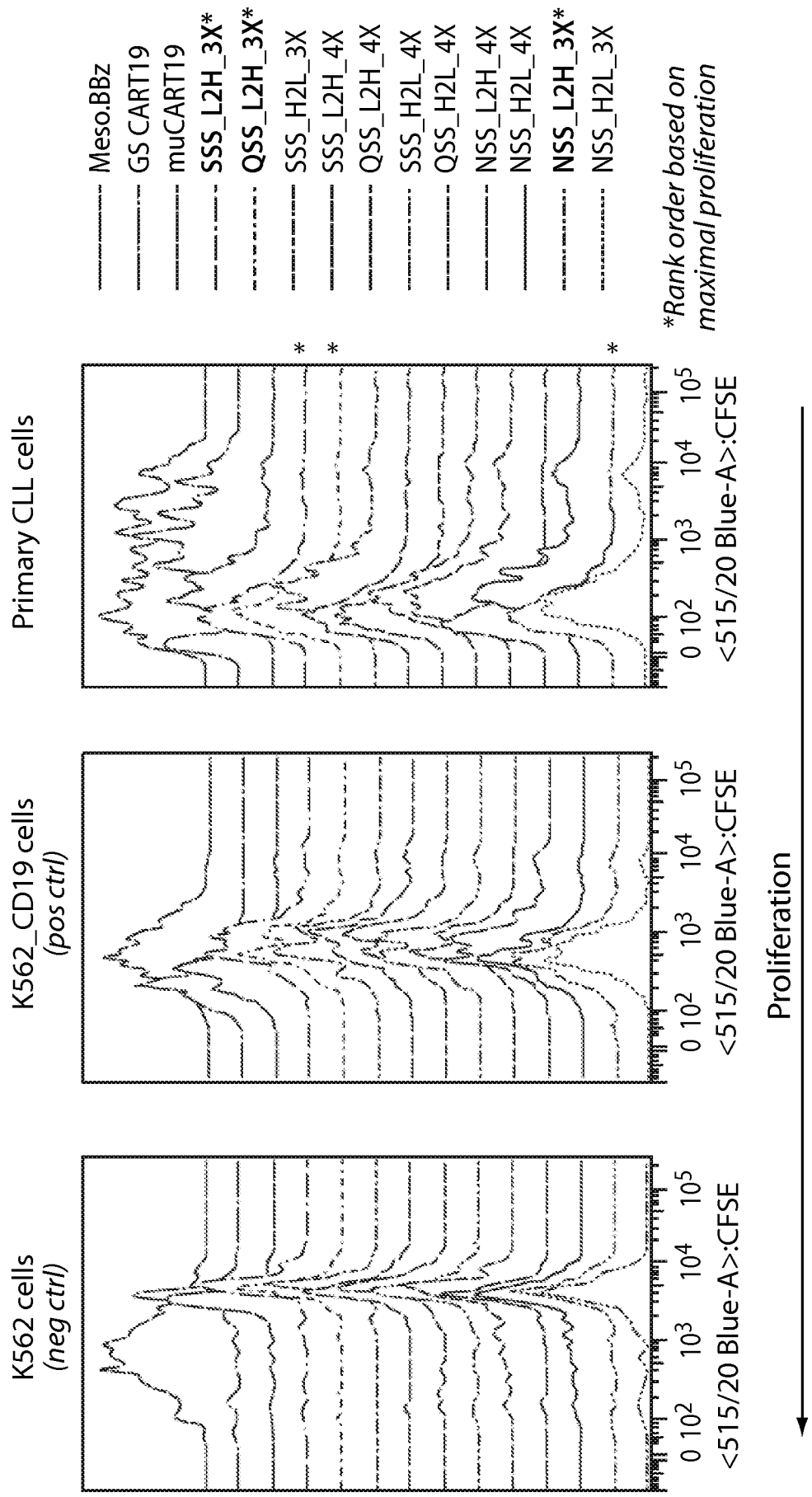


FIG. 5

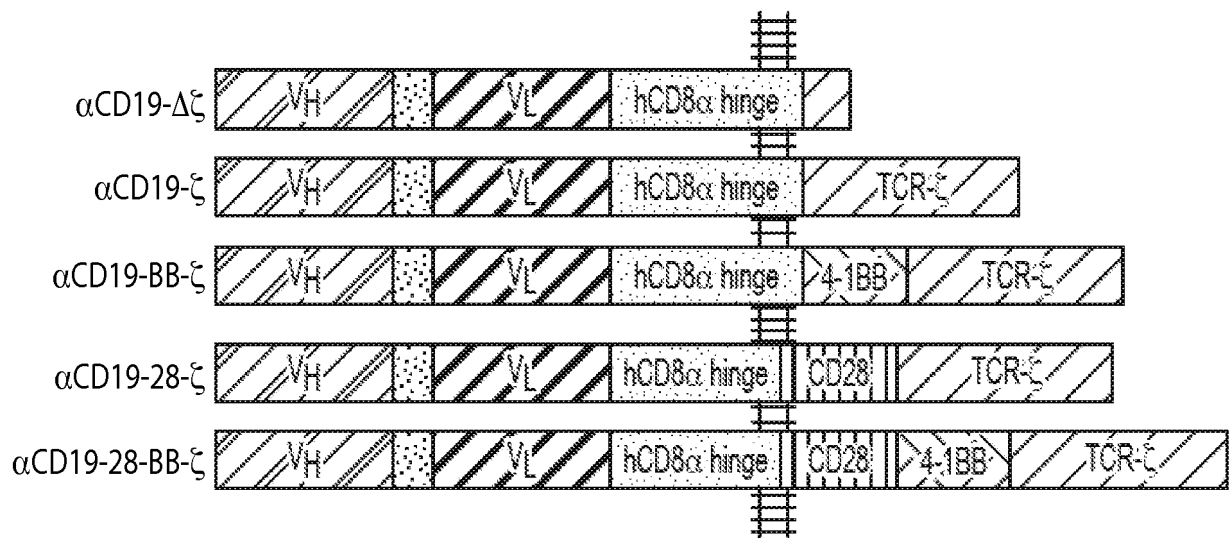


FIG. 6A

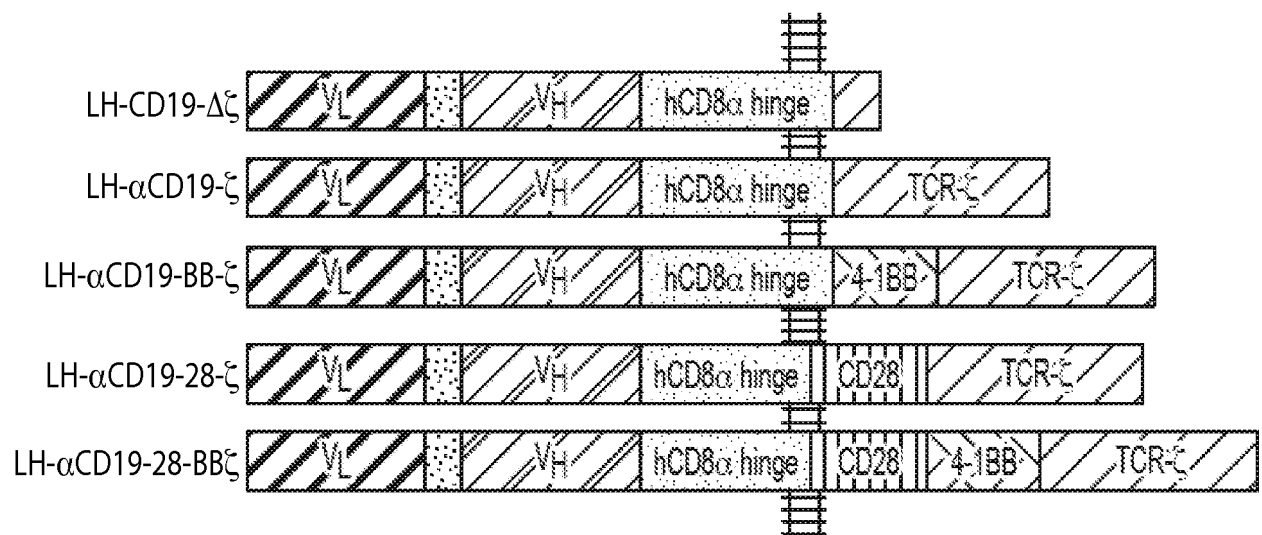


FIG. 6B

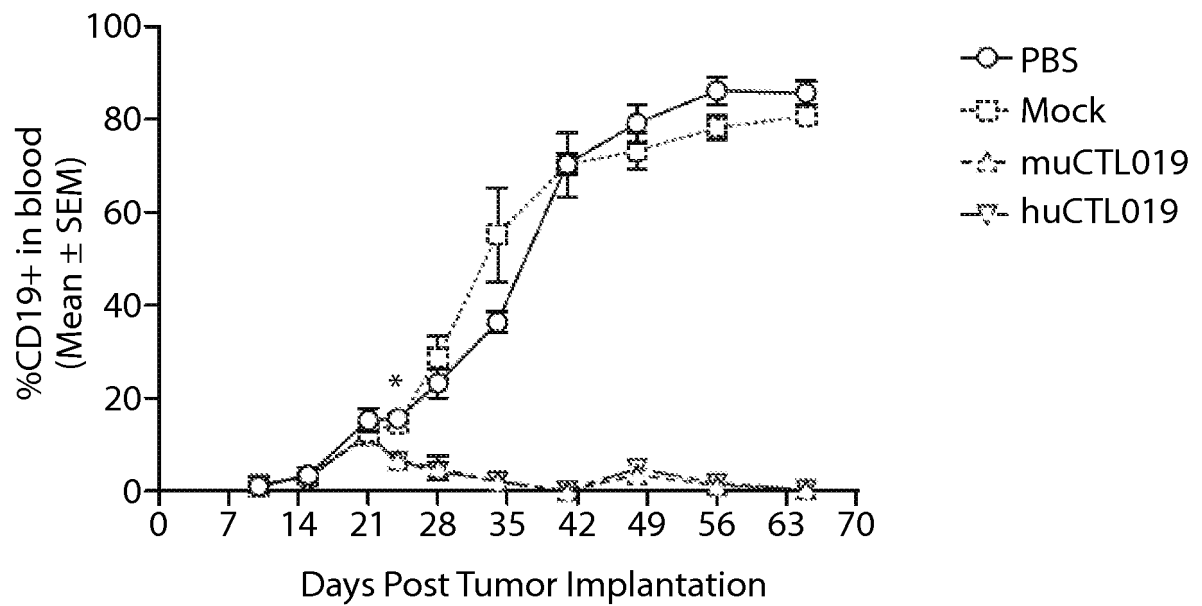
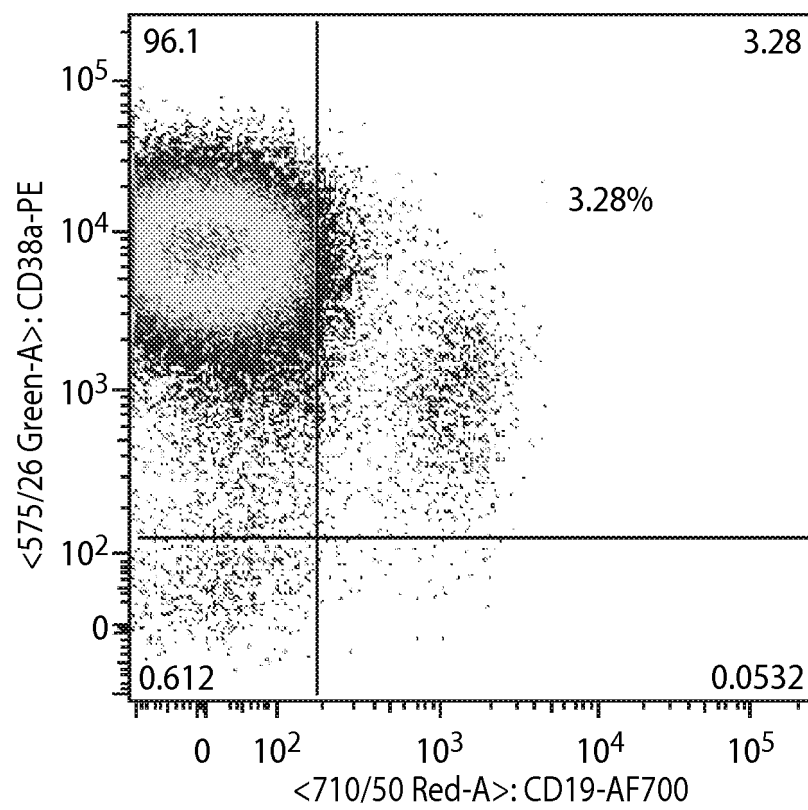


FIG. 7



CD138+ CD45 dim tumor cells stained for CD19 (x-axis) and CD38 (y-axis)

FIG. 8

Cell numbers

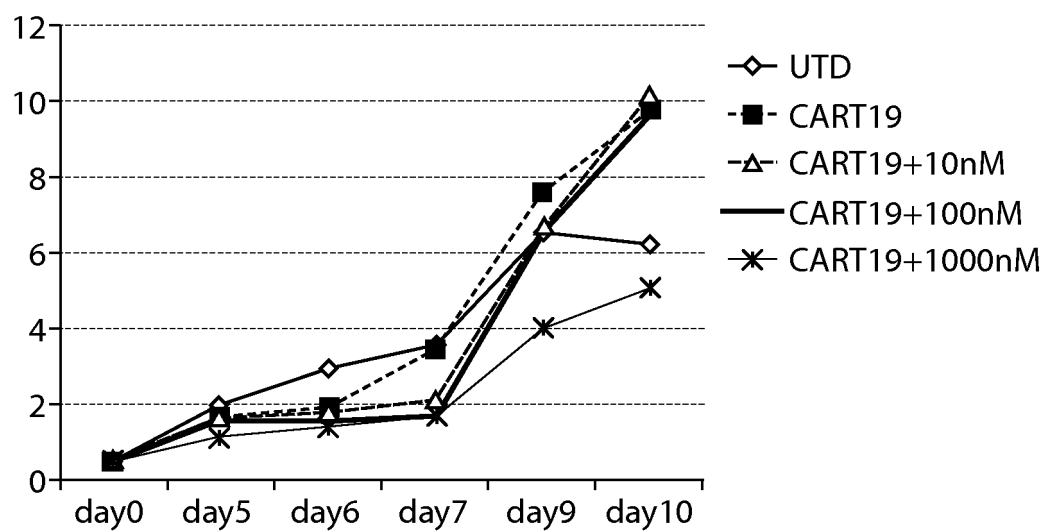


FIG. 9A

Cell Volume

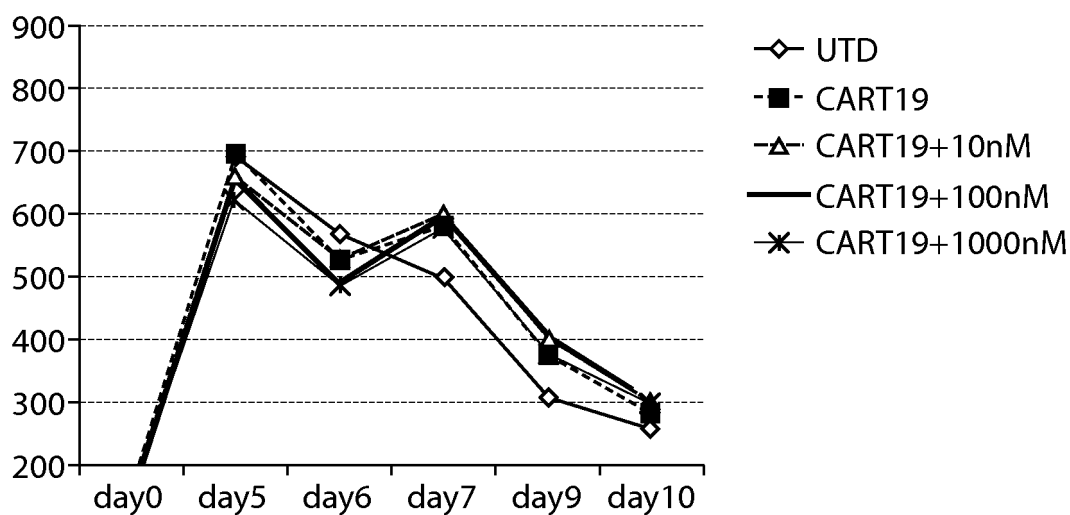


FIG. 9B

5 DAY CFSE PROLIFERATION ASSAY

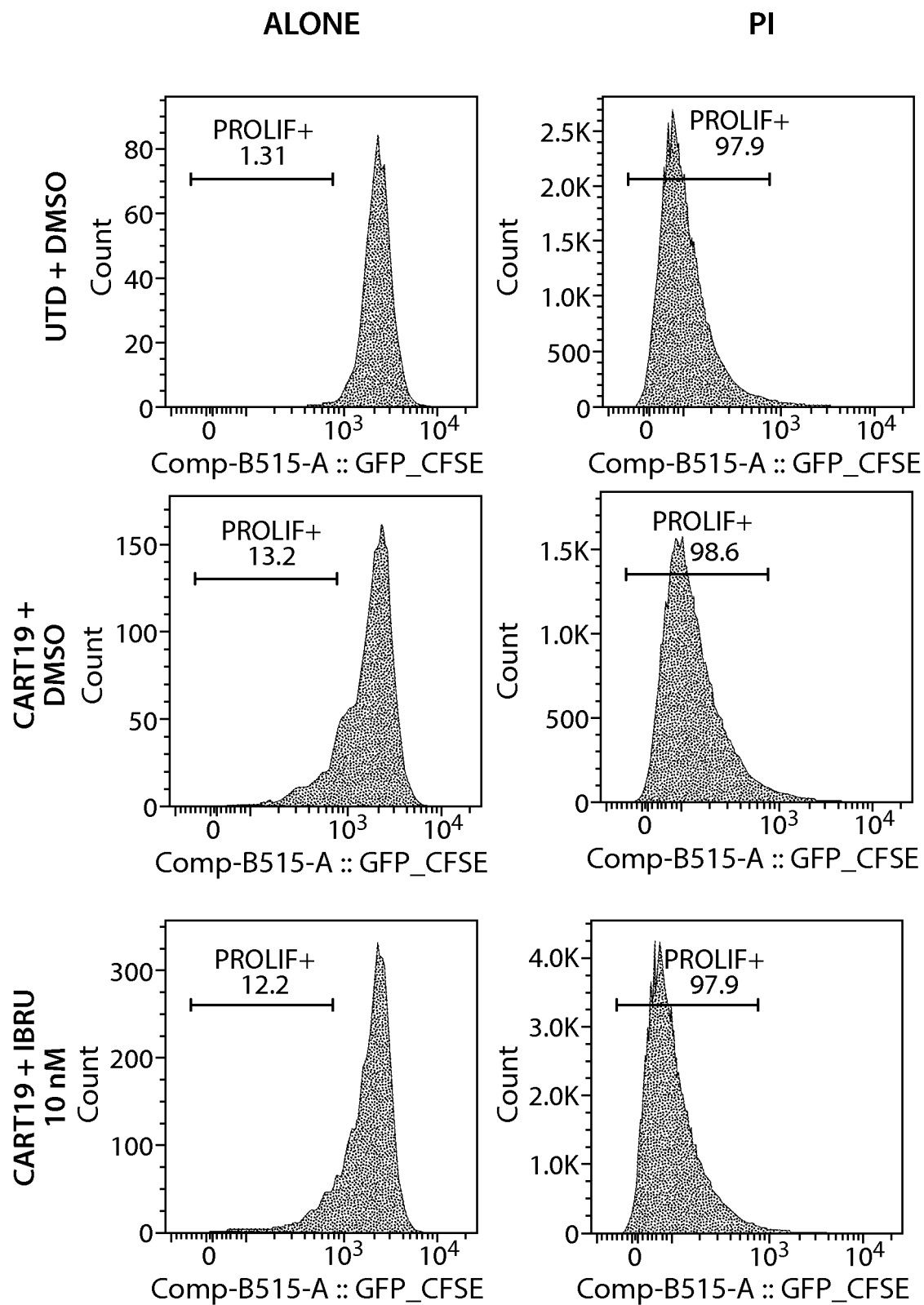


FIG. 10A-1

5 DAY CFSE PROLIFERATION ASSAY

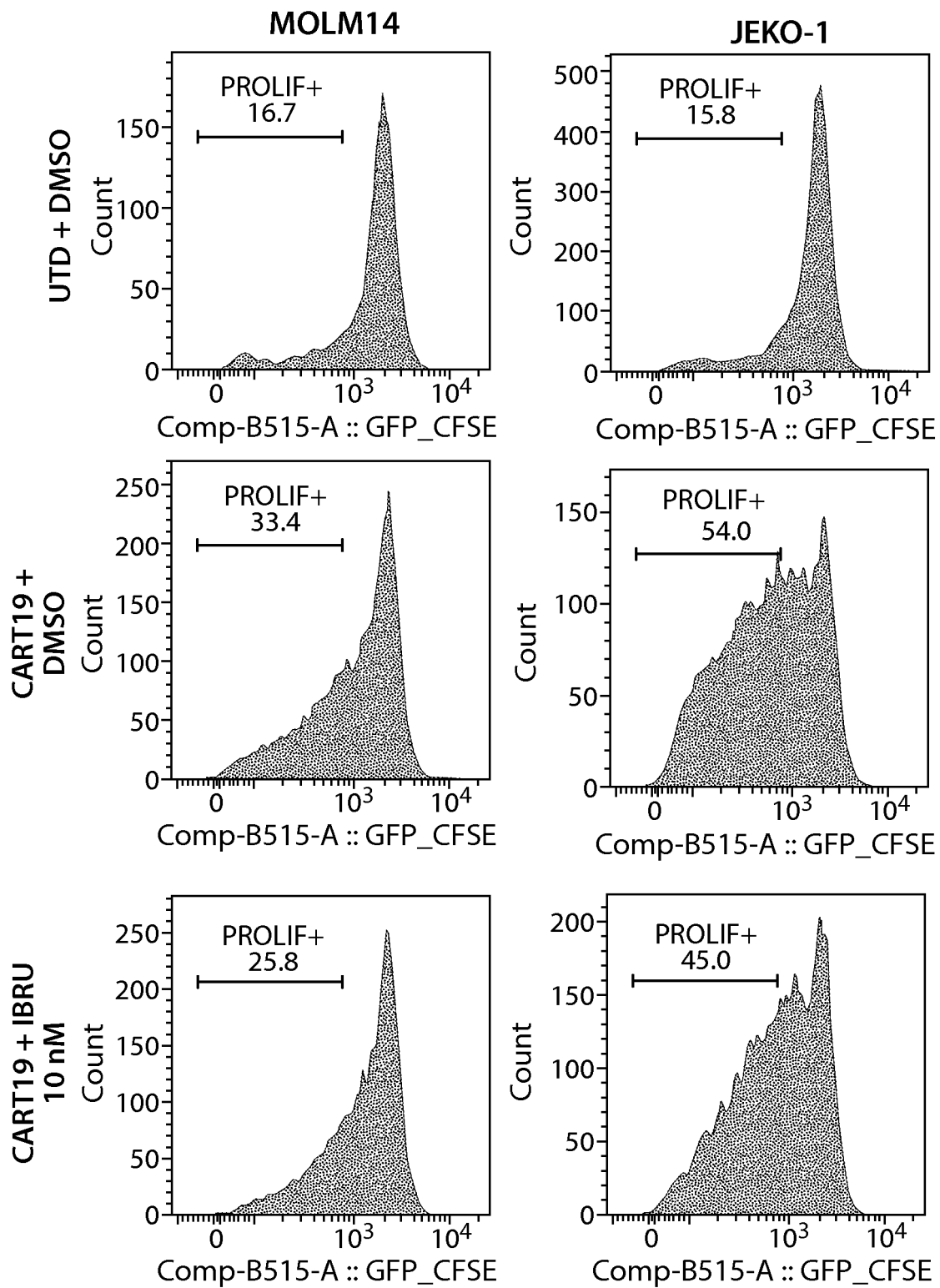


FIG. 10A-2

5 DAY CFSE PROLIFERATION ASSAY

RL

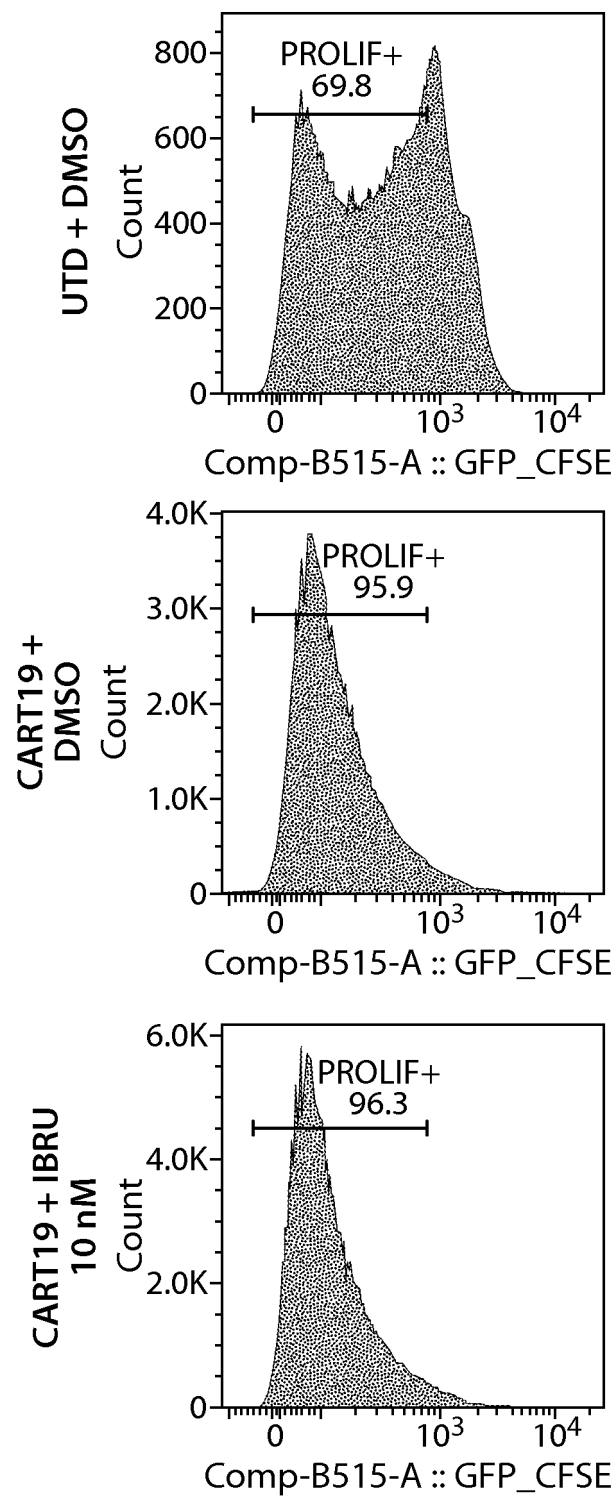


FIG. 10A-3

5 DAY CFSE PROLIFERATION ASSAY

JEKO-1

RL

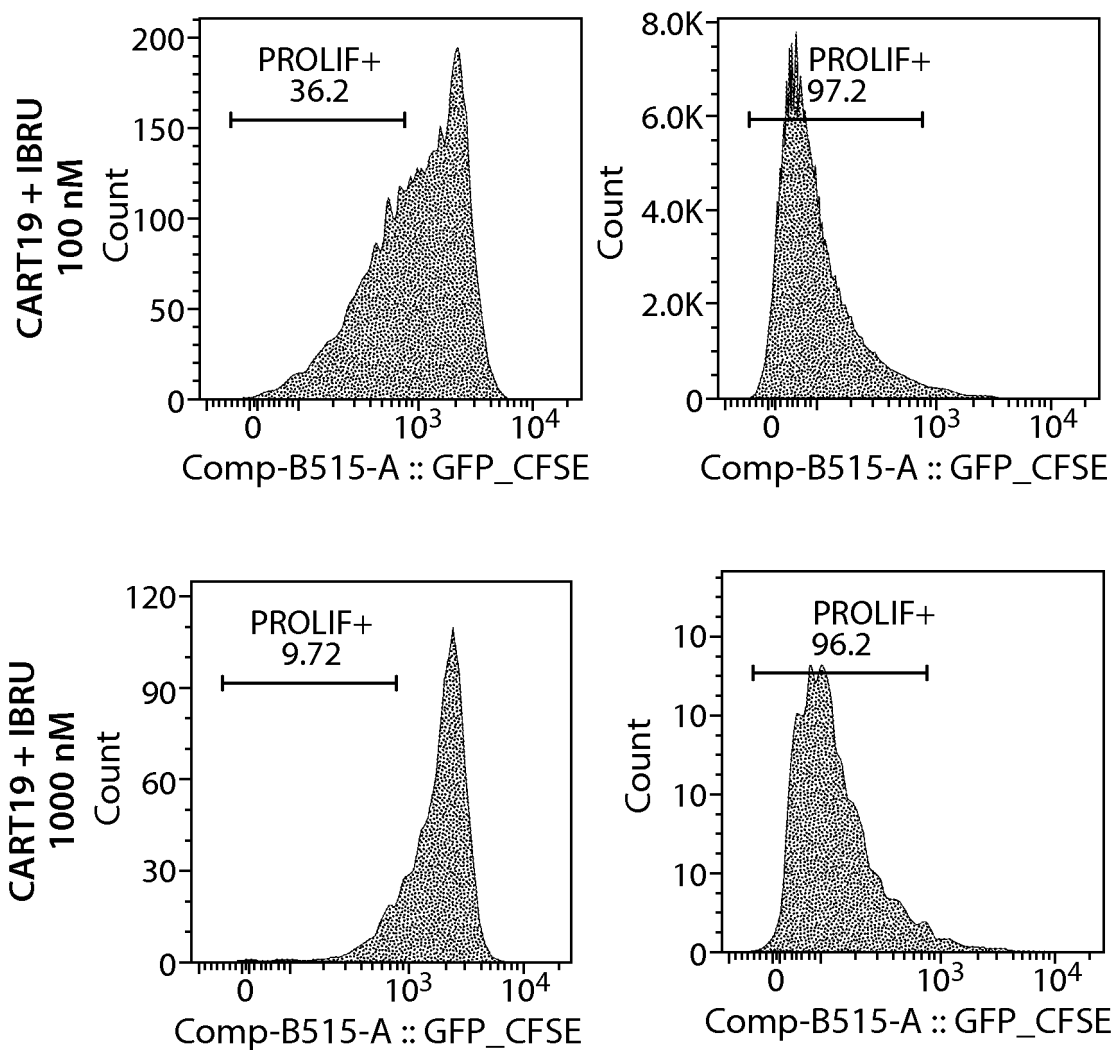
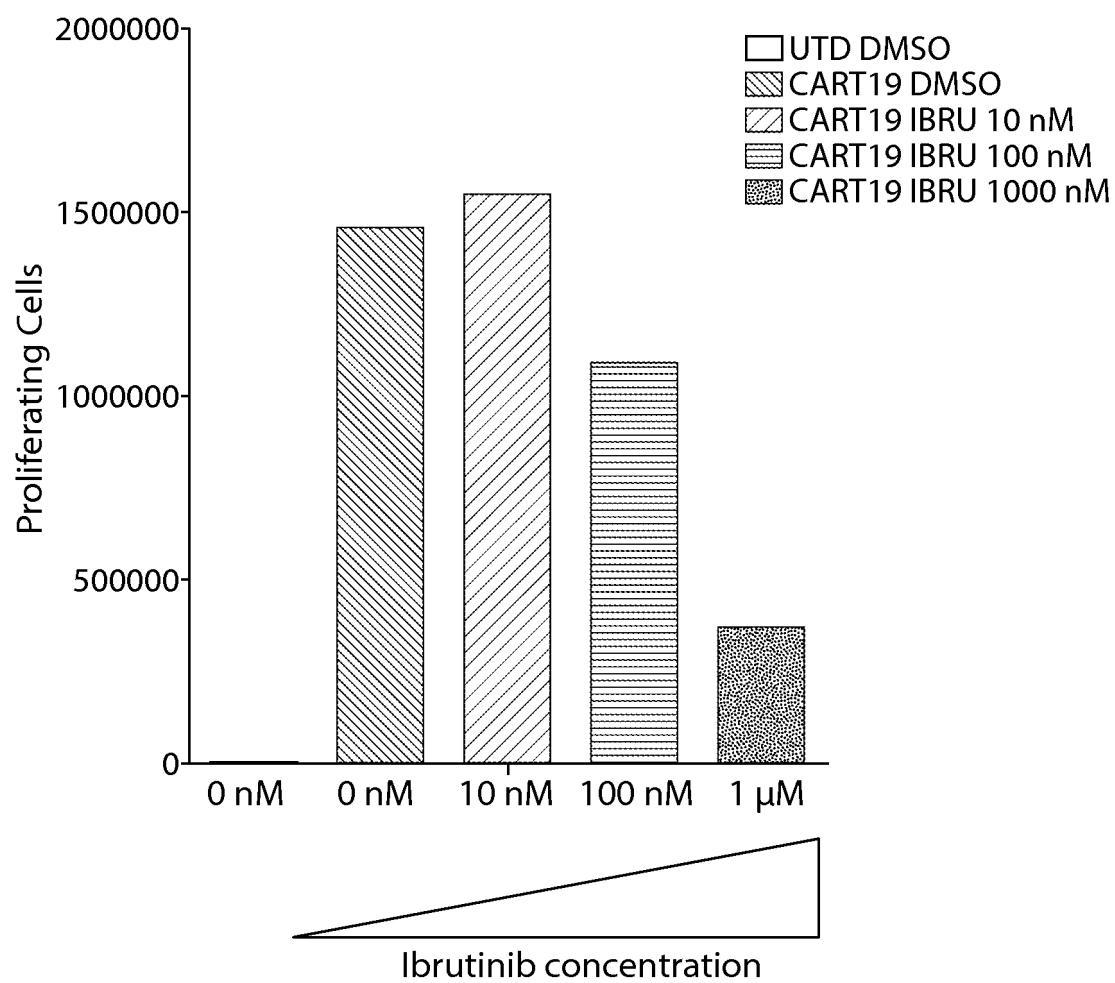


FIG. 10A-4

5 DAY CFSE PROLIFERATION ASSAY**FIG. 10B**

CD107a DEGRANULATION

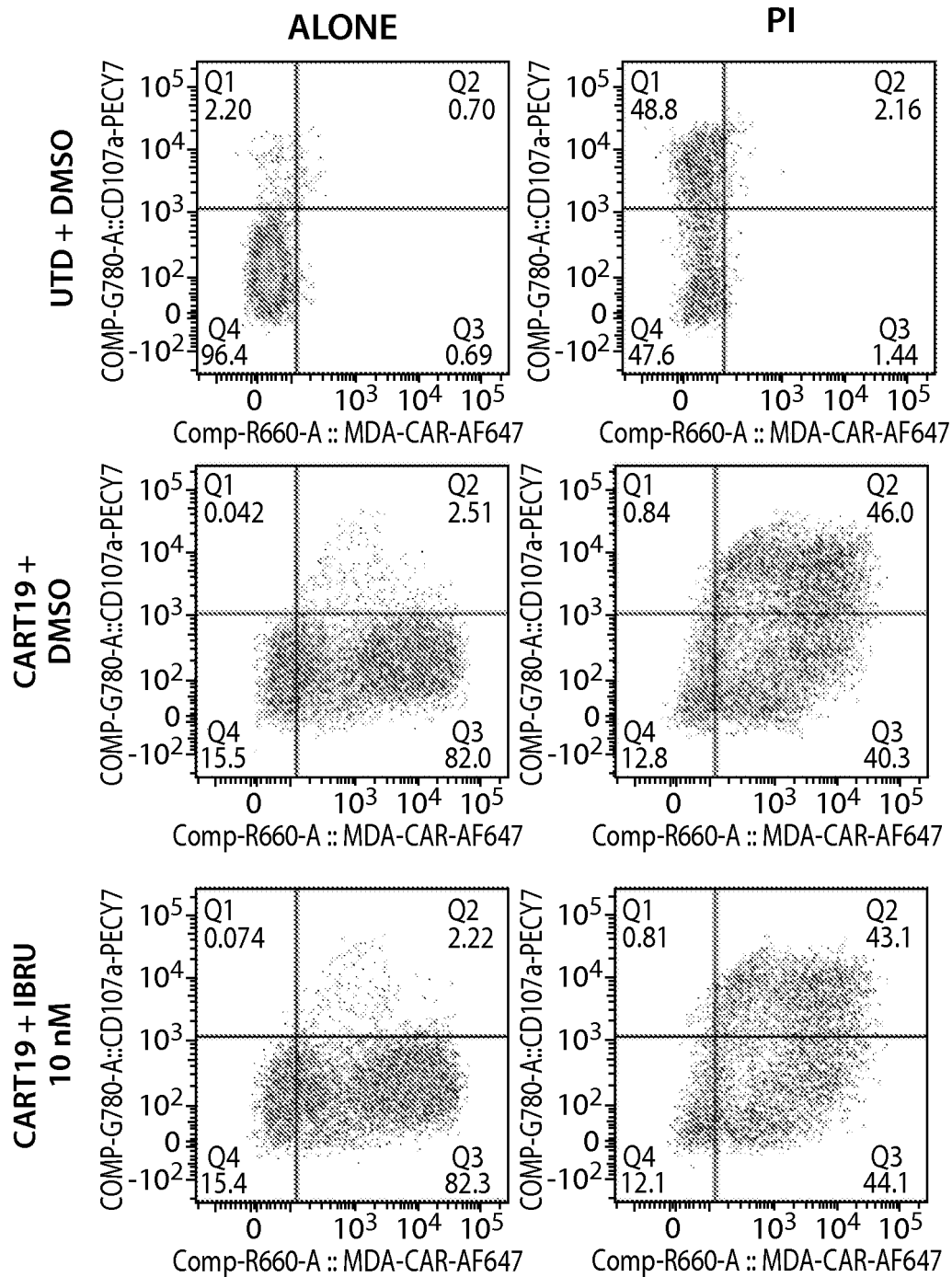


FIG. 11A-1

CD107a DEGRANULATION

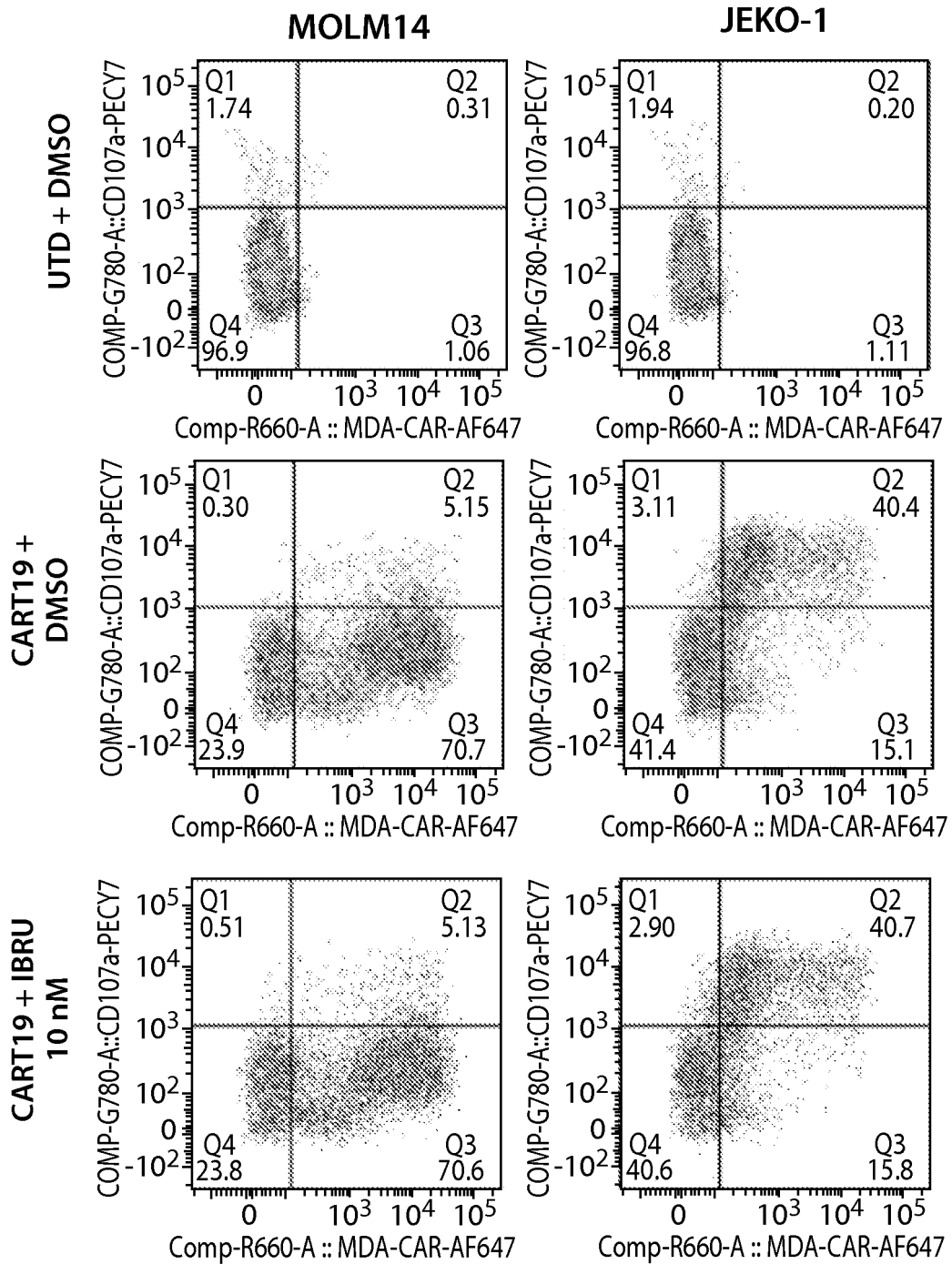


FIG. 11A-2

CD107a DEGRANULATION

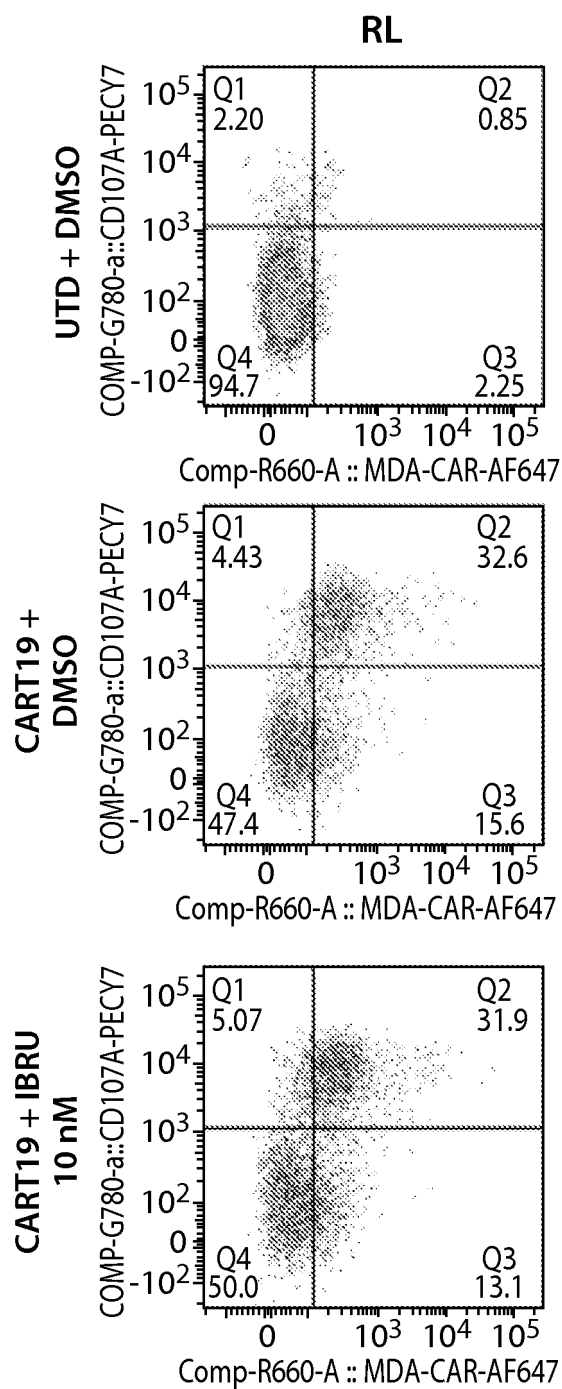
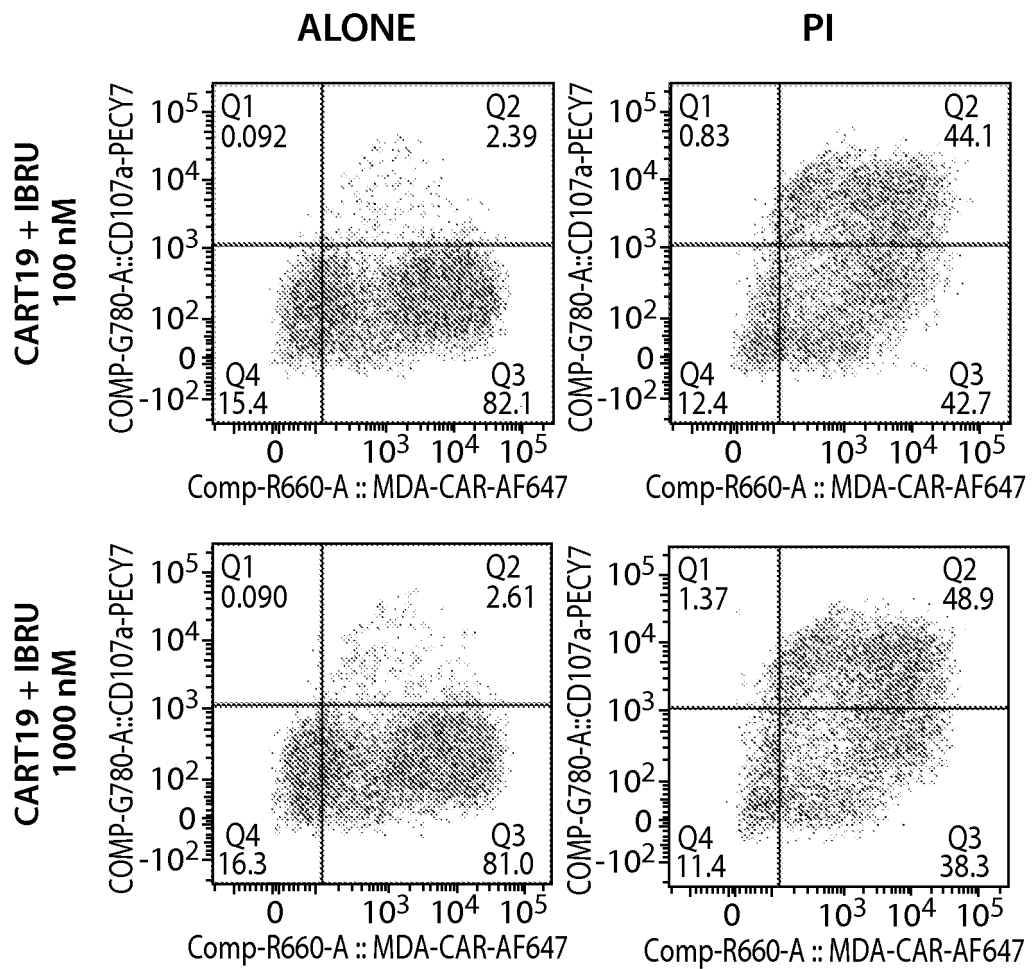


FIG. 11A-3

CD107a DEGRANULATION**FIG. 11A-4**

CD107a DEGRANULATION

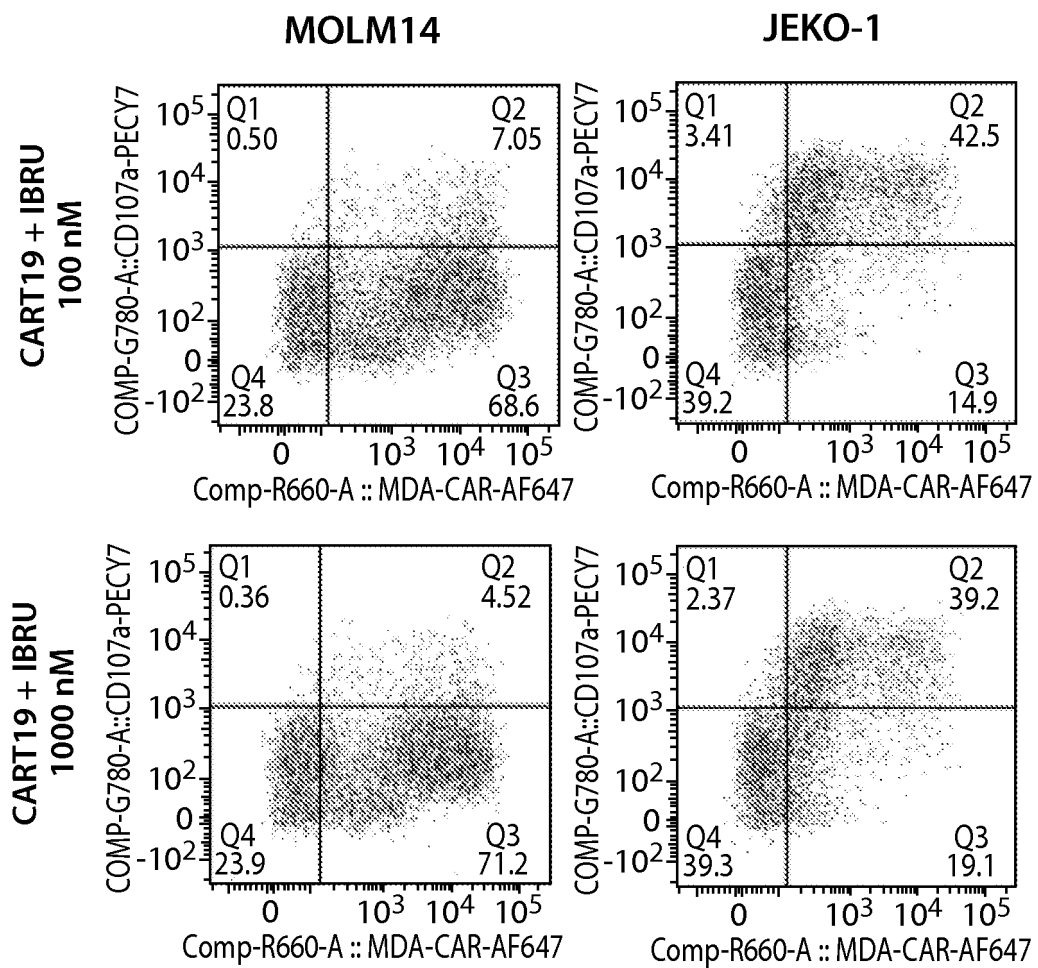


FIG. 11A-5

CD107a DEGRANULATION

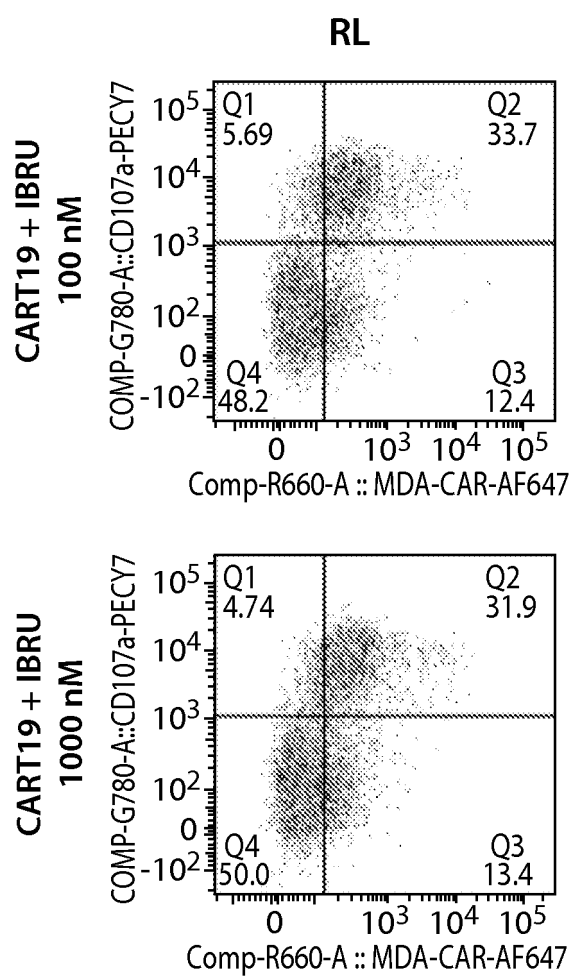
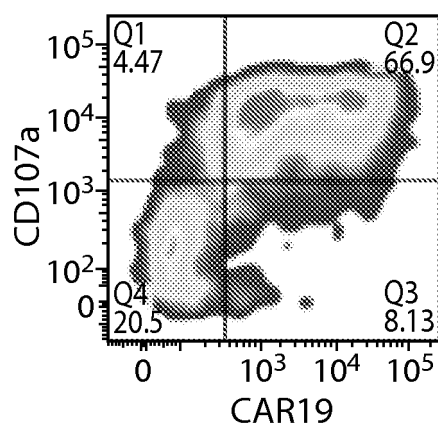


FIG. 11A-6



□ UTD DMSO
 ▨ CART19 DMSO
 ▩ CART19 IBRU 10 nM
 ▪ CART19 IBRU 100 nM
 ▫ CART19 IBRU 1000 nM

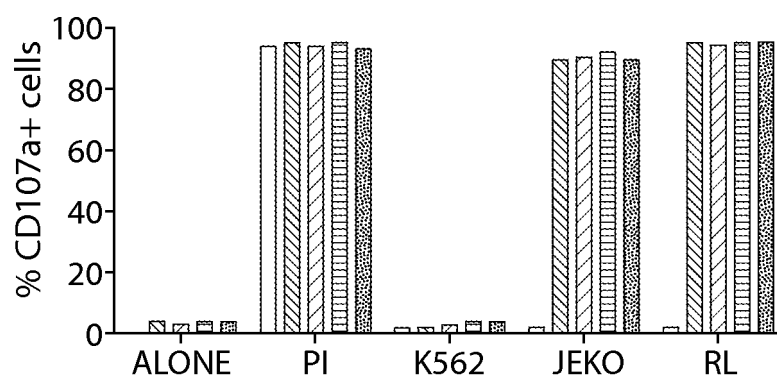


FIG. 11B

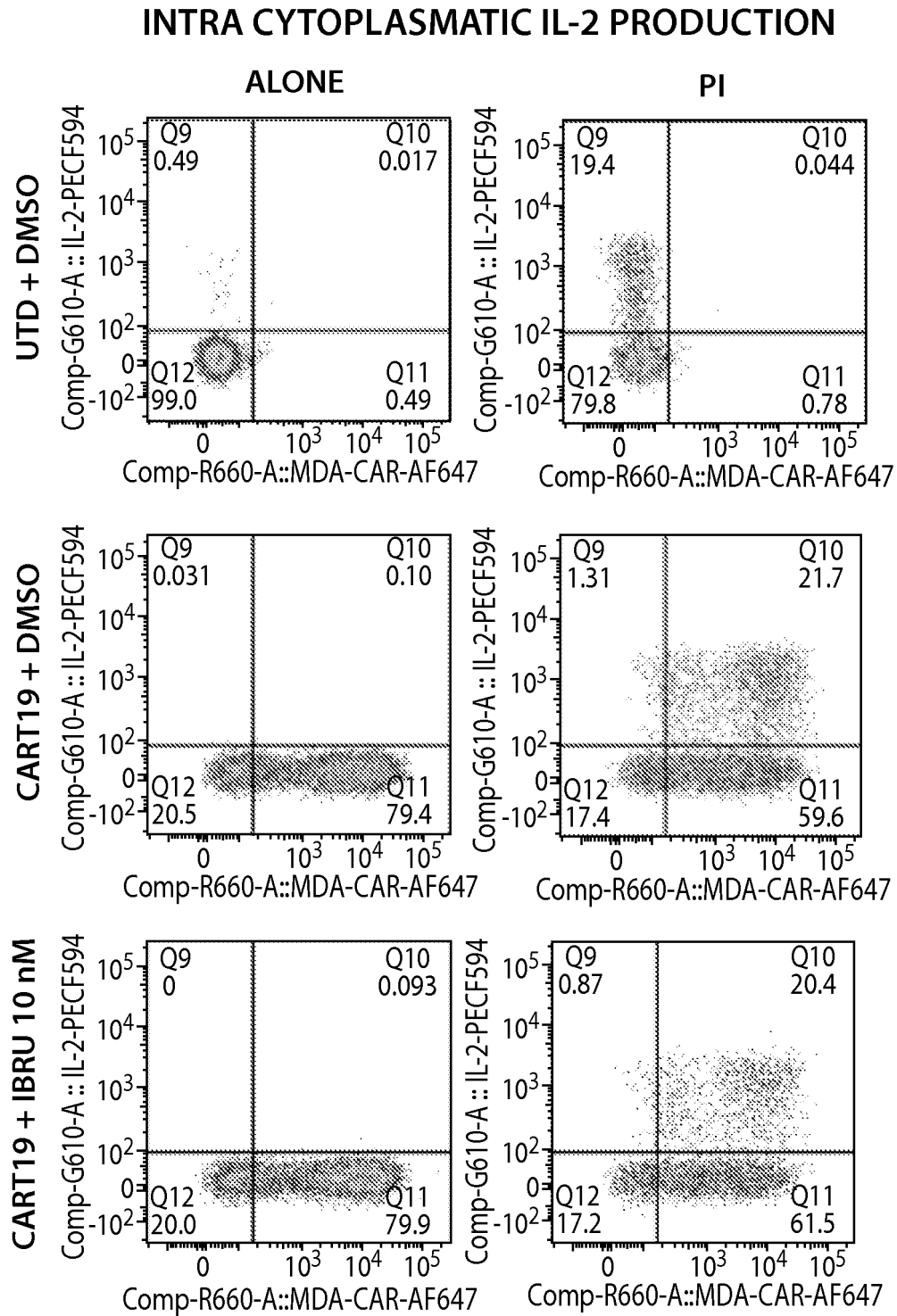


FIG. 12-1

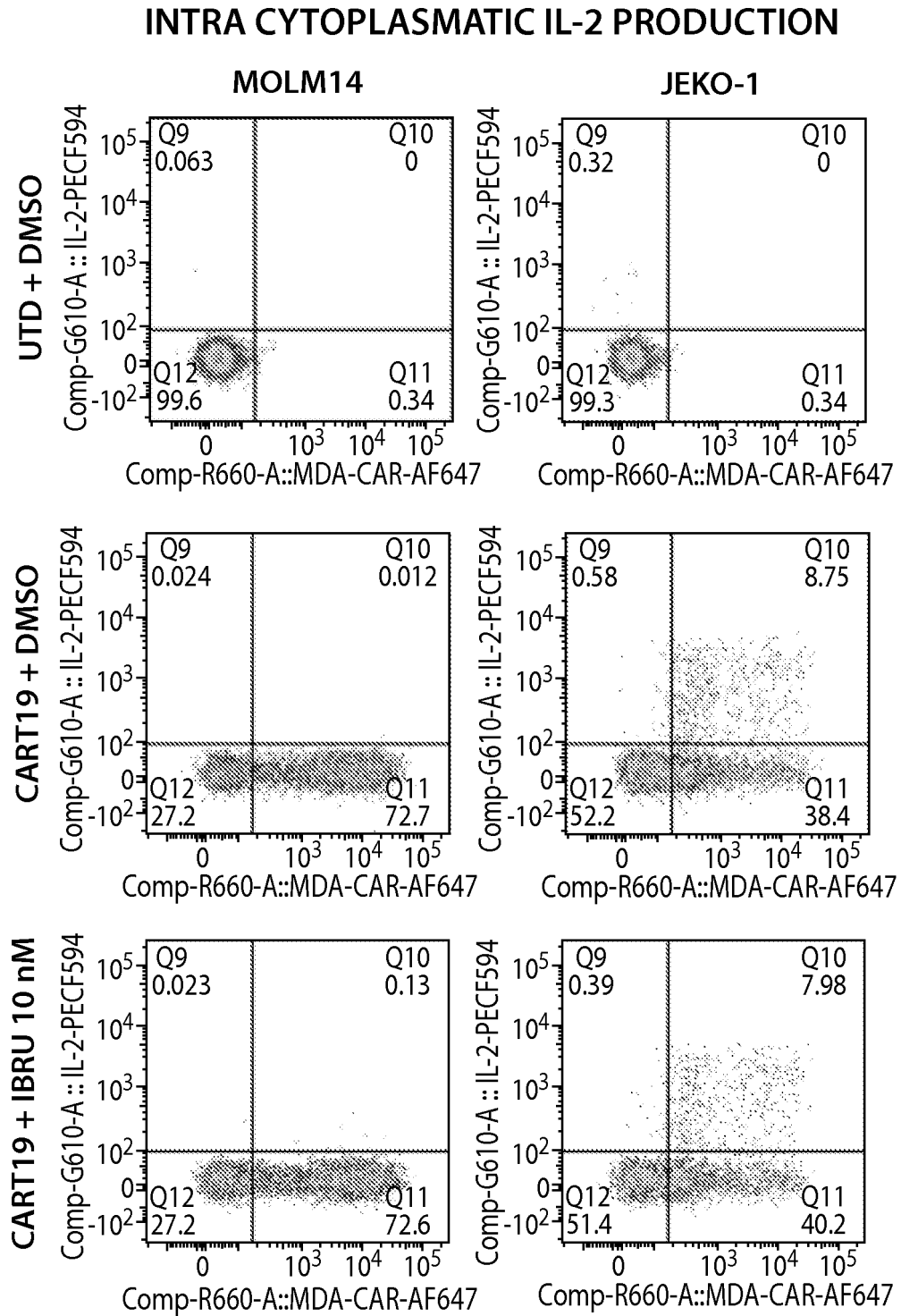


FIG. 12-2

INTRA CYTOPLASMATIC IL-2 PRODUCTION

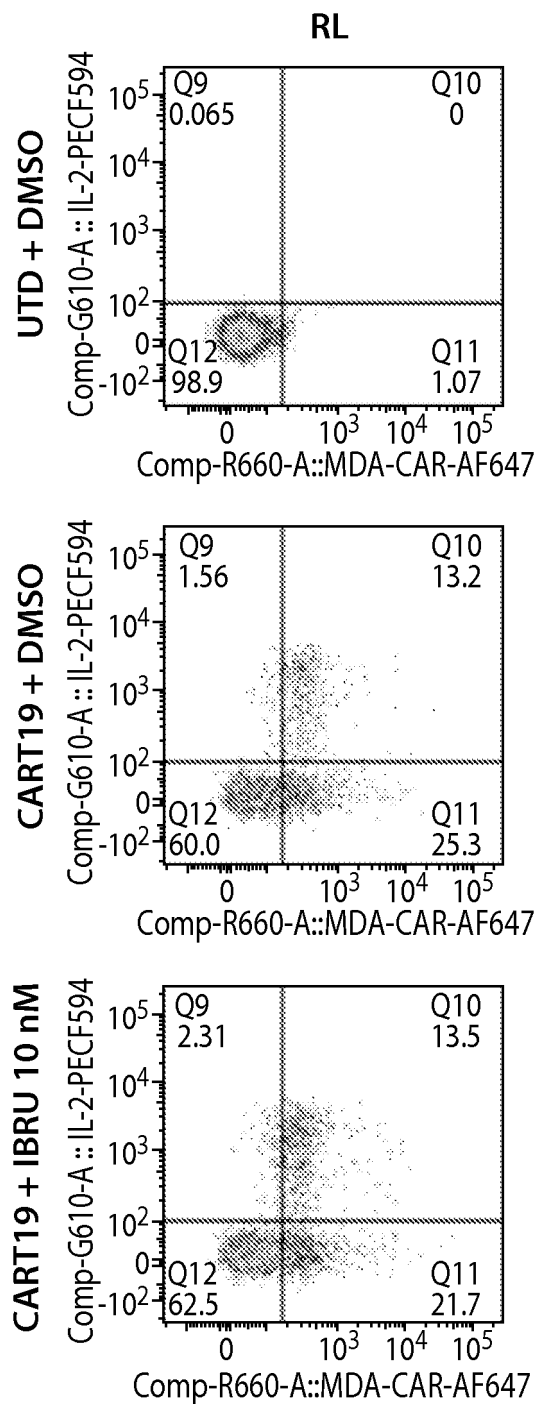


FIG. 12-3

INTRA CYTOPLASMATIC IL-2 PRODUCTION

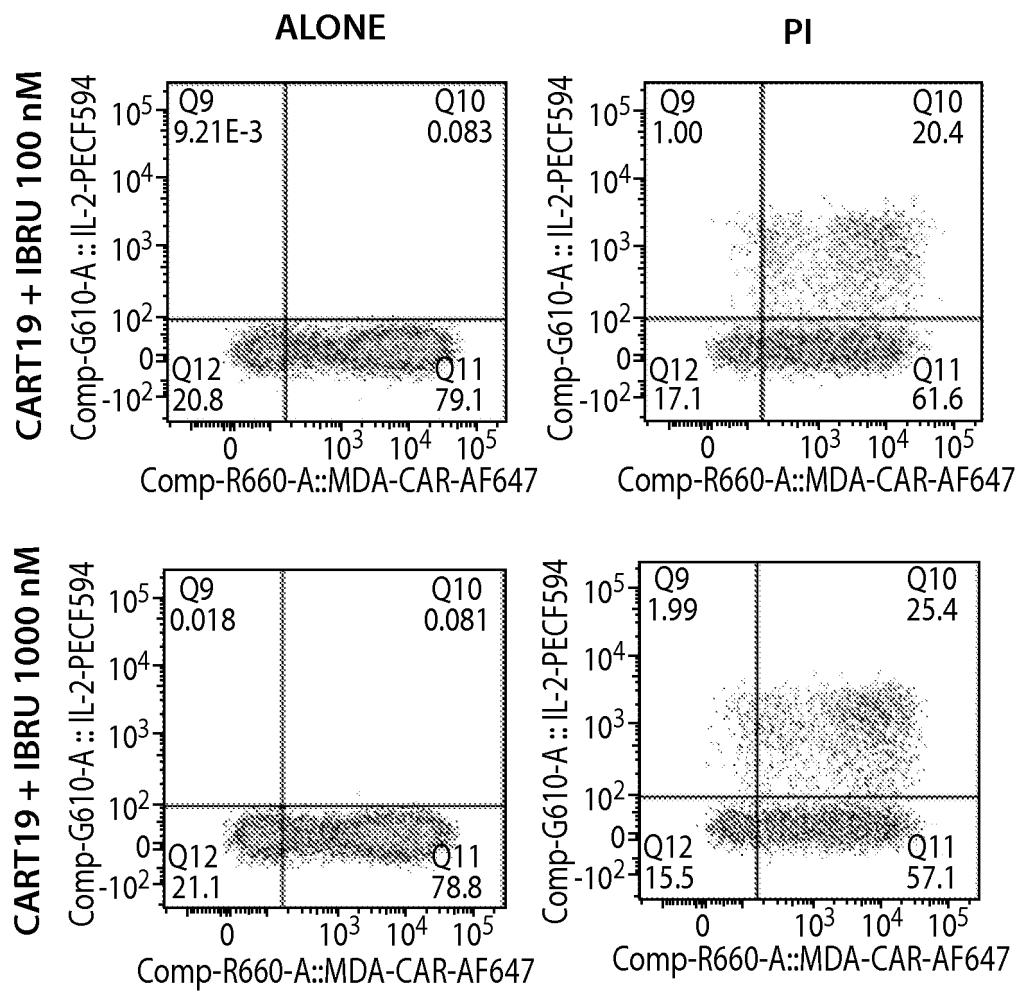


FIG. 12-4

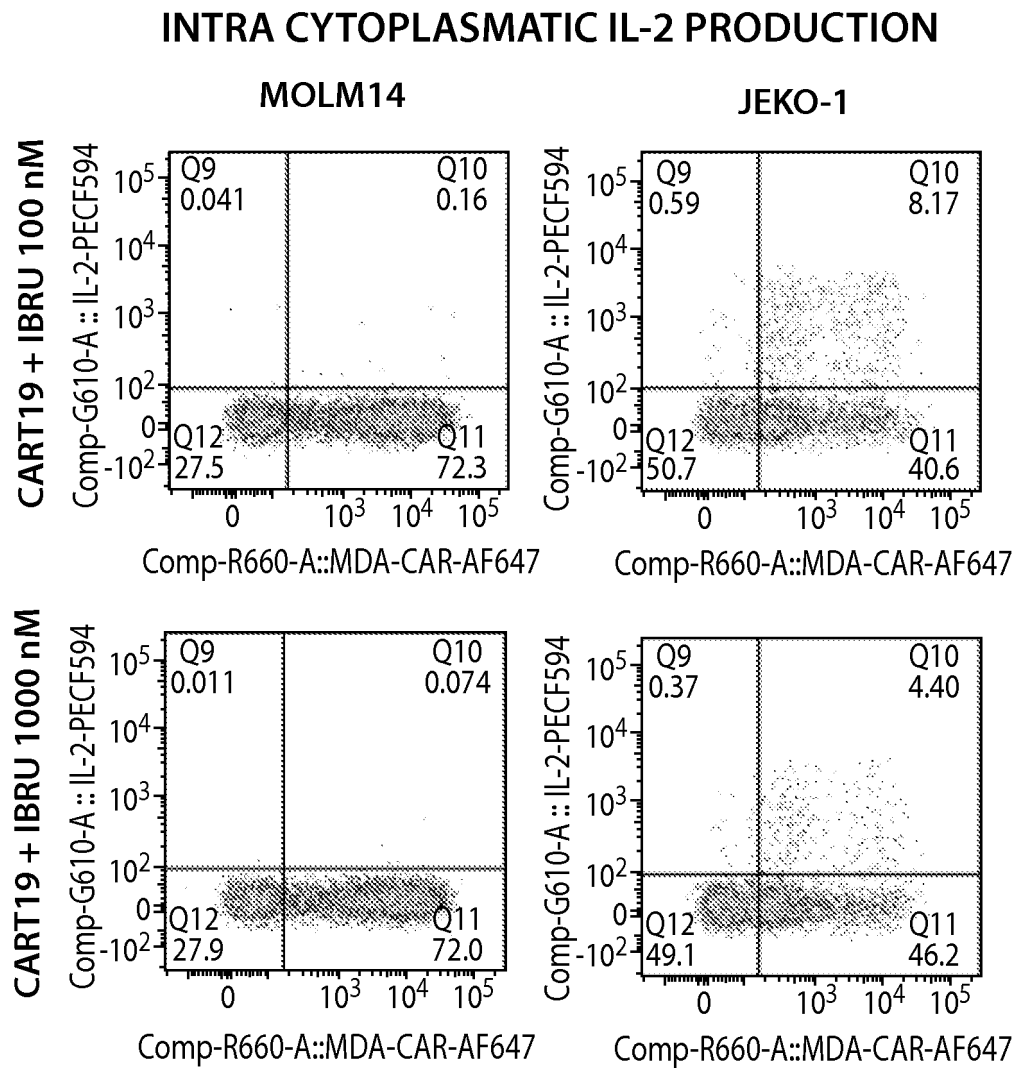


FIG. 12-5

INTRA CYTOPLASMATIC IL-2 PRODUCTION

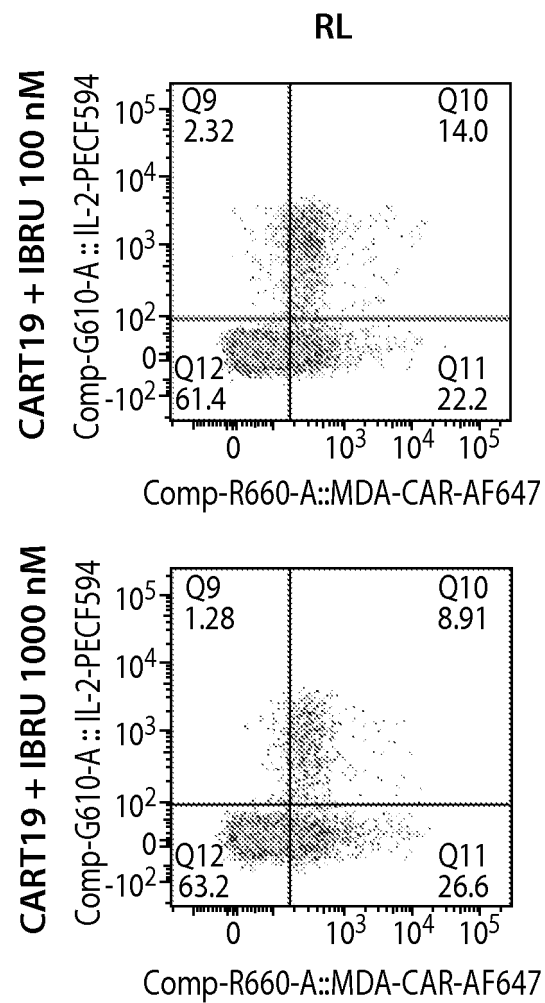
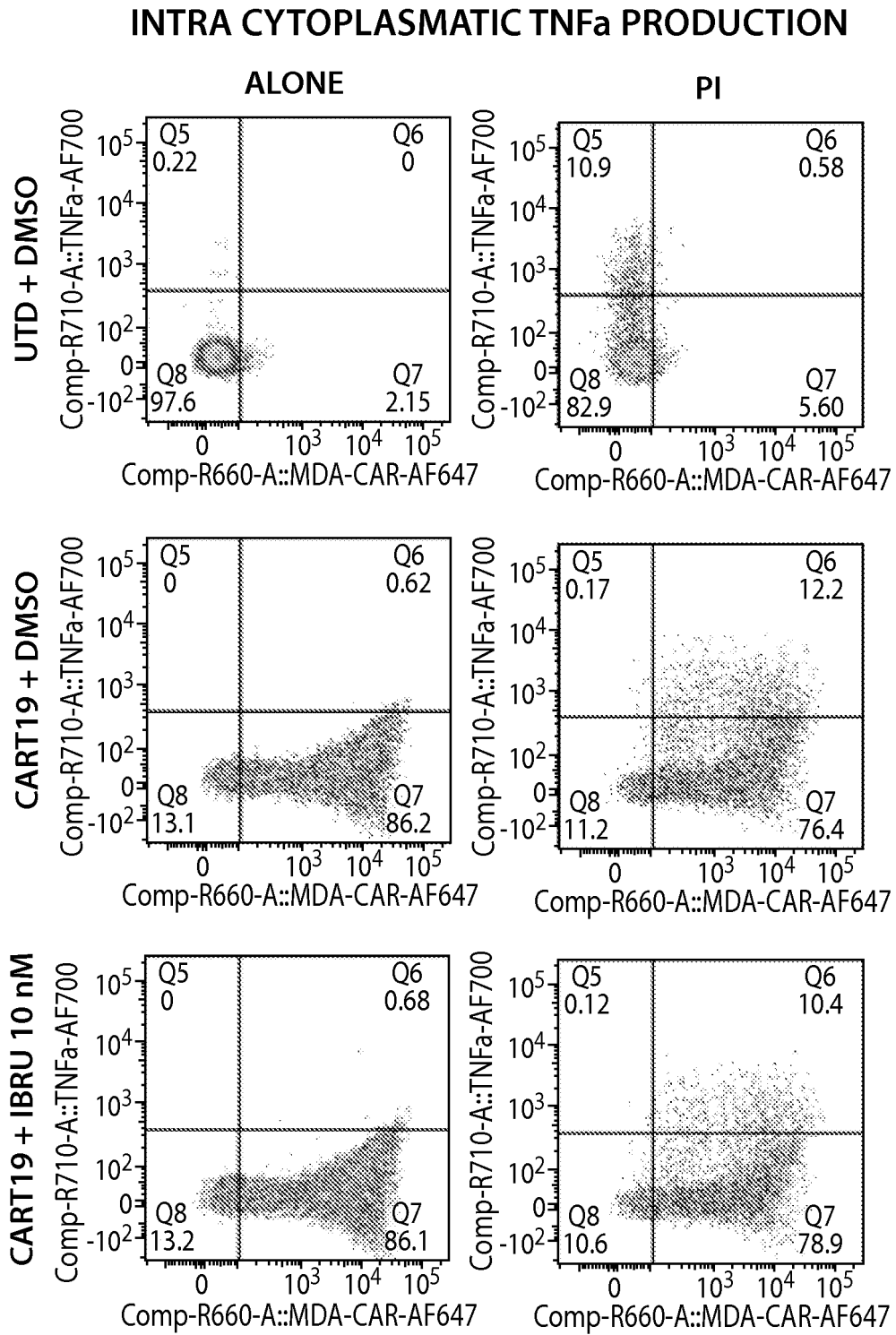


FIG. 12-6

**FIG. 13-1**

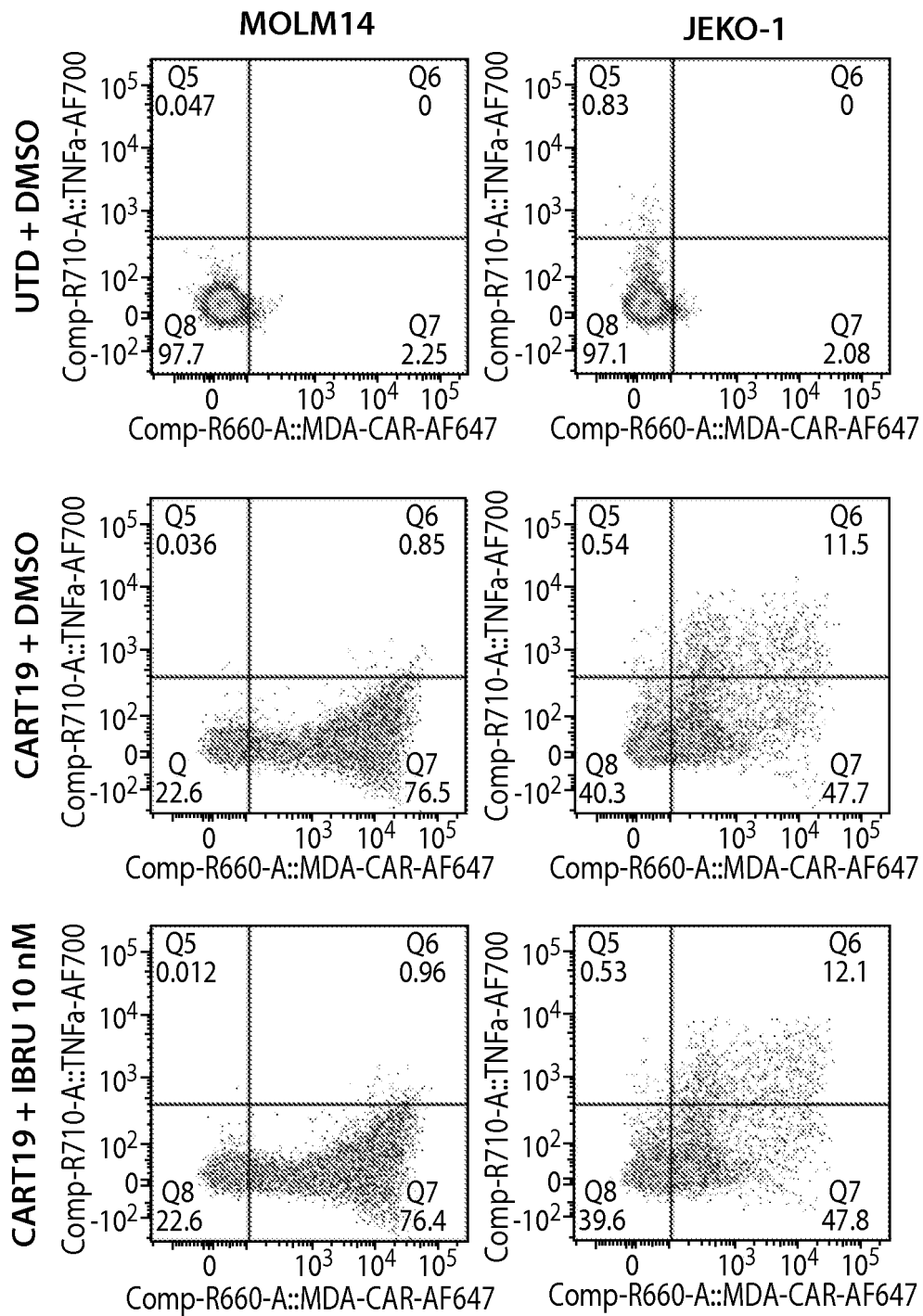
INTRA CYTOPLASMATIC TNF α PRODUCTION

FIG. 13-2

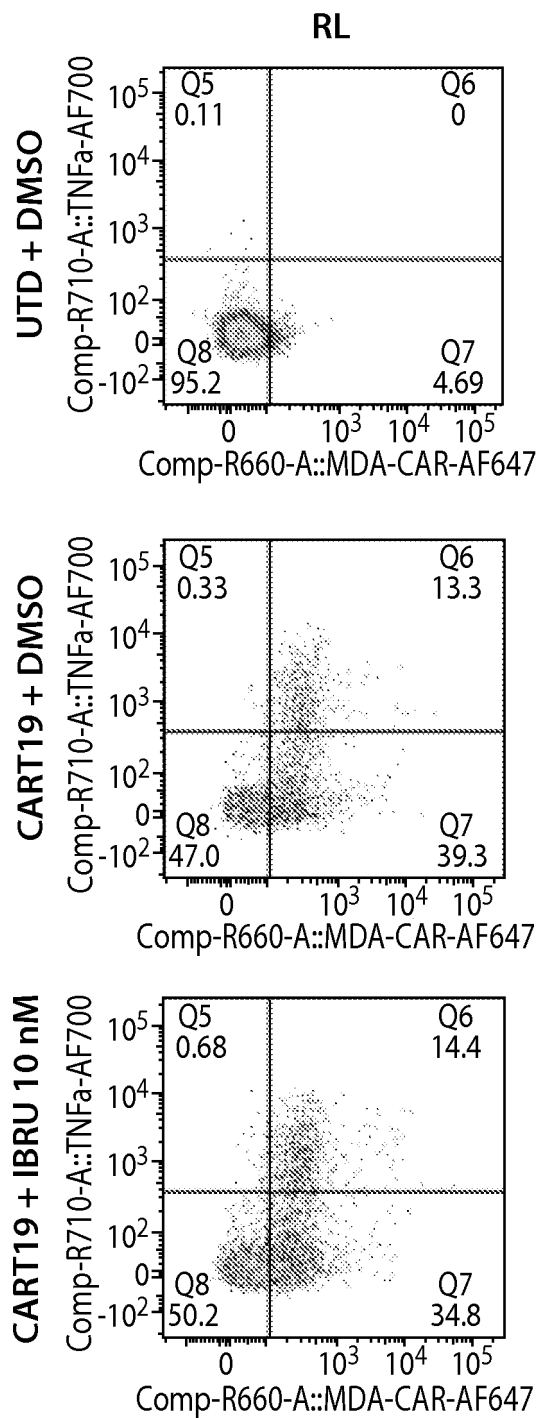
INTRA CYTOPLASMATIC TNF α PRODUCTION

FIG. 13-3

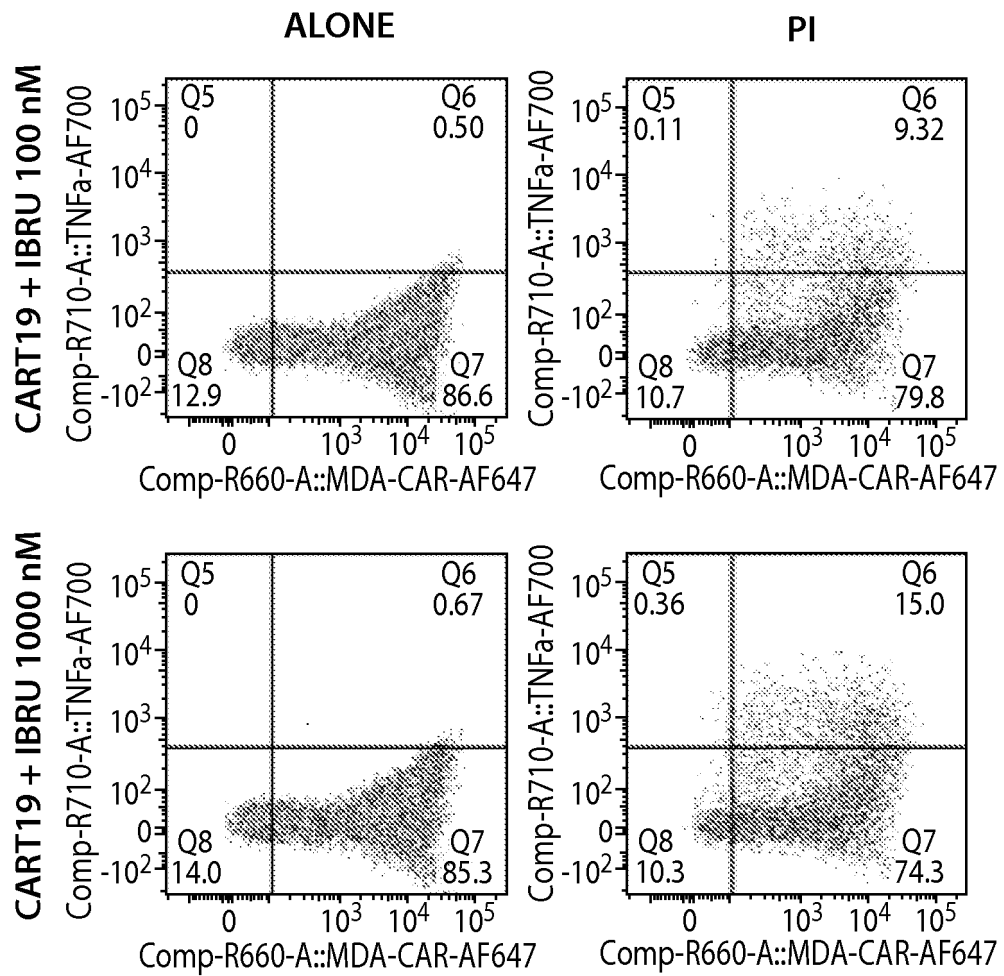
INTRA CYTOPLASMATIC TNF α PRODUCTION

FIG. 13-4

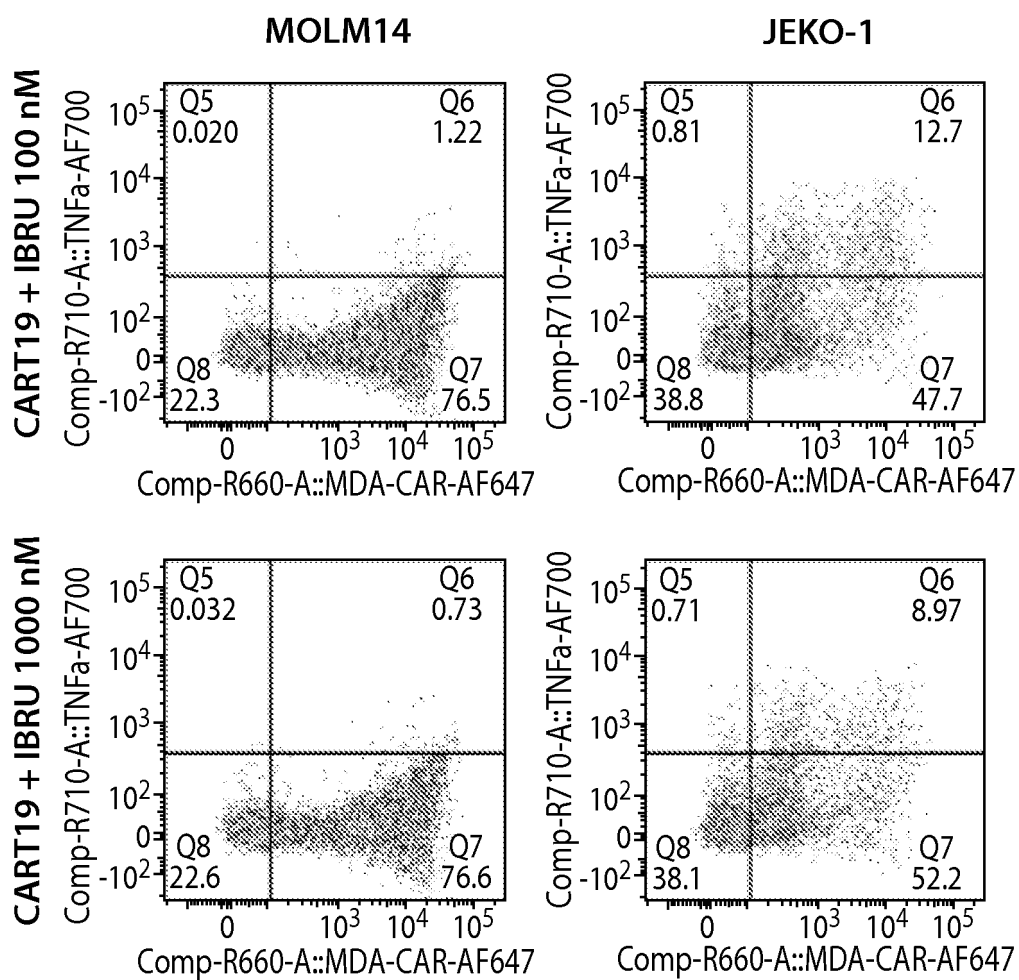
INTRA CYTOPLASMATIC TNF α PRODUCTION

FIG. 13-5

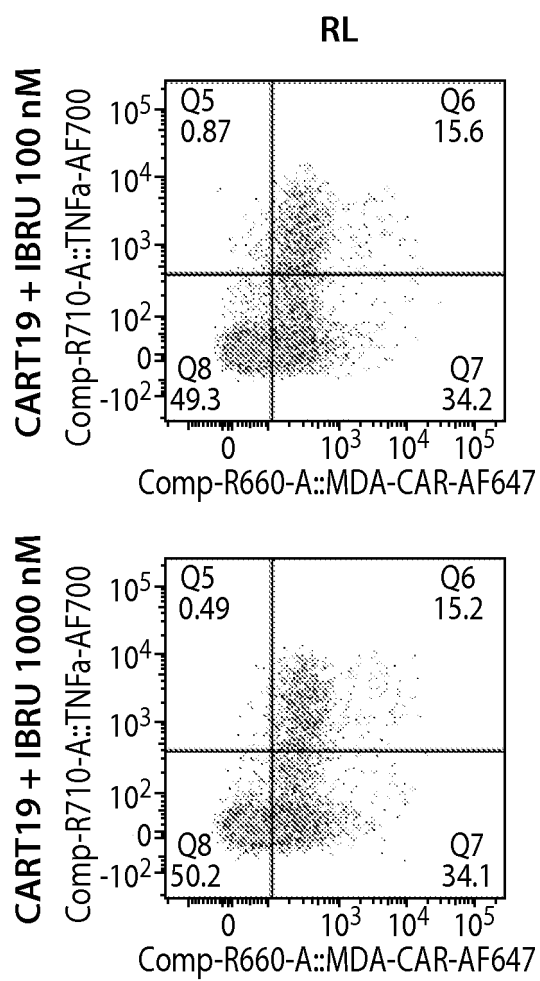
INTRA CYTOPLASMATIC TNF α PRODUCTION

FIG. 13-6

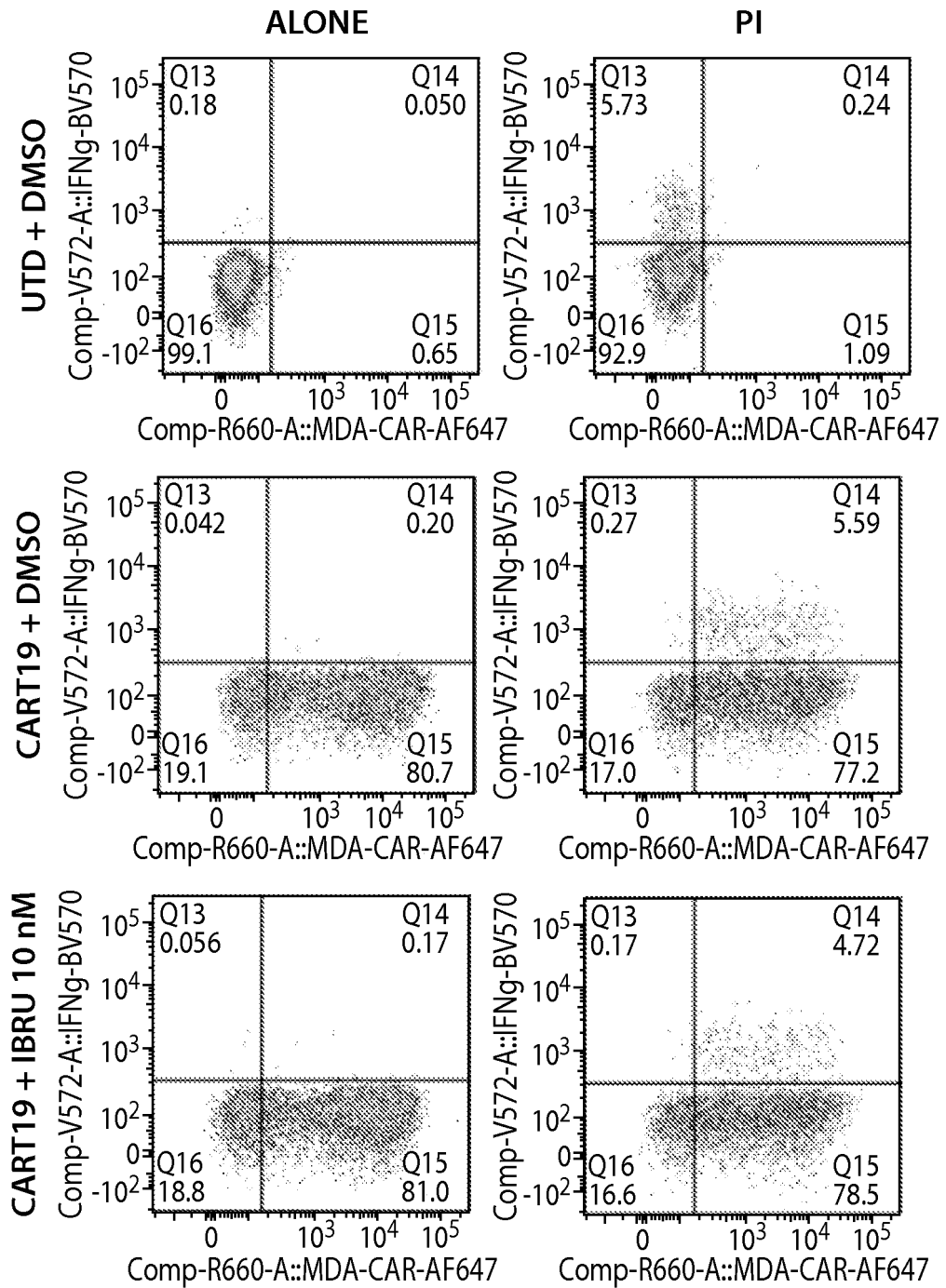
INTRA CYTOPLASMATIC IFN γ PRODUCTION

FIG. 14-1

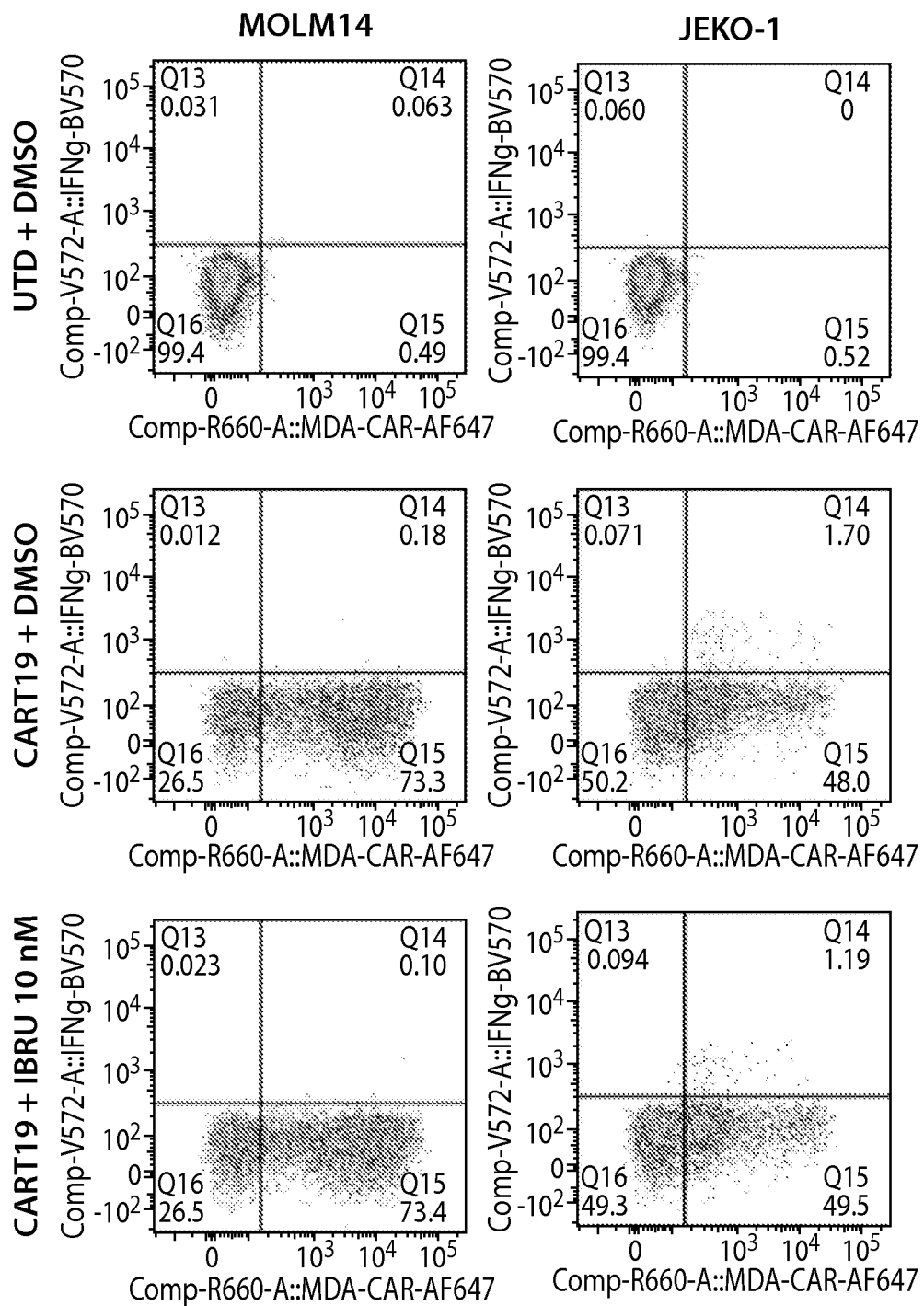
INTRA CYTOPLASMATIC IFN γ PRODUCTION

FIG. 14-2

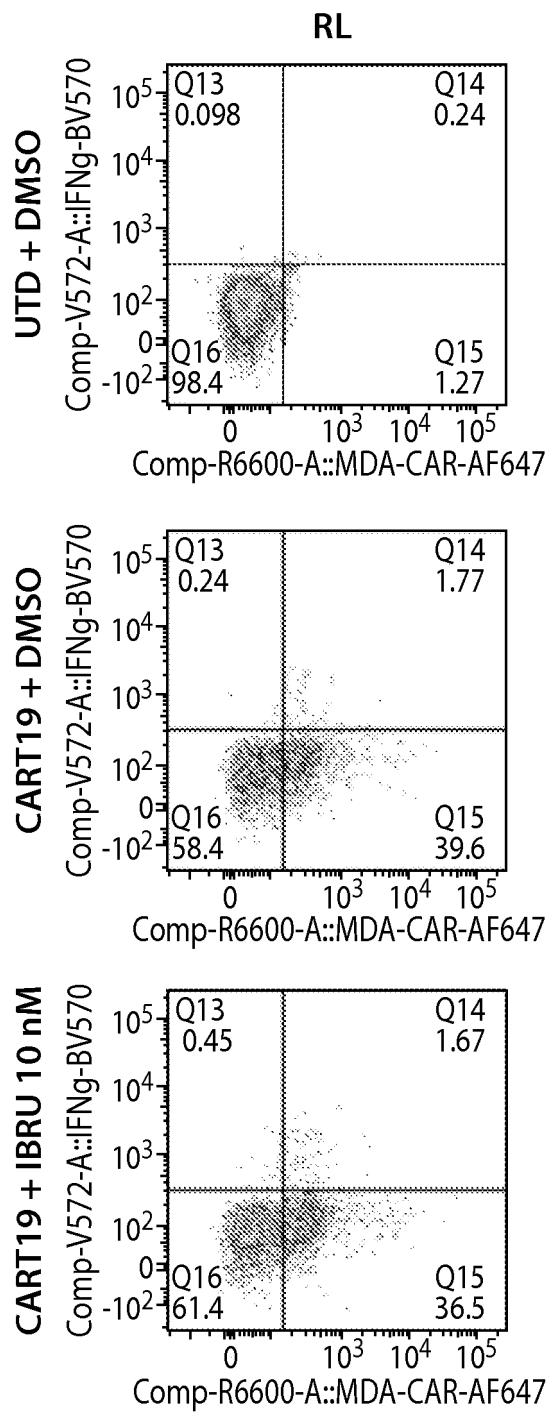
INTRA CYTOPLASMATIC IFN γ PRODUCTION

FIG. 14-3

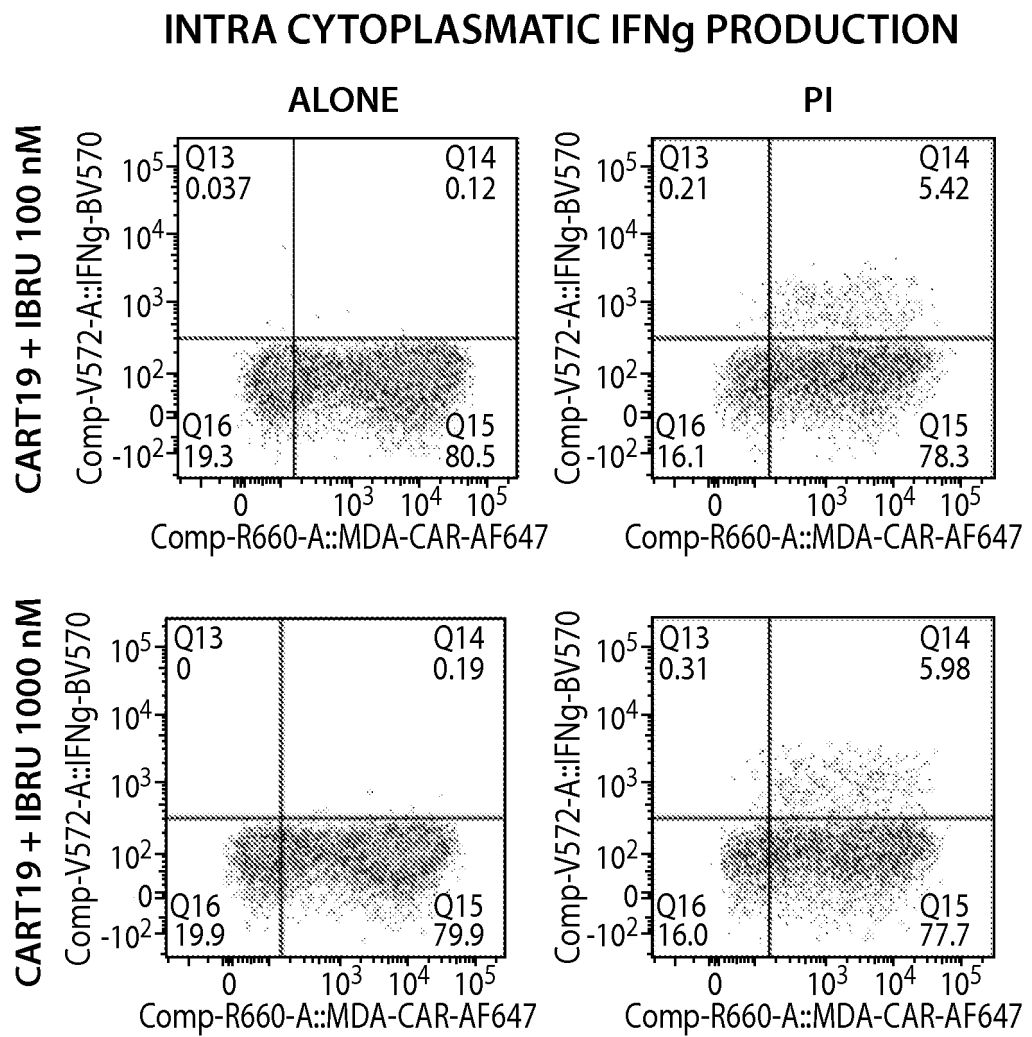


FIG. 14-4

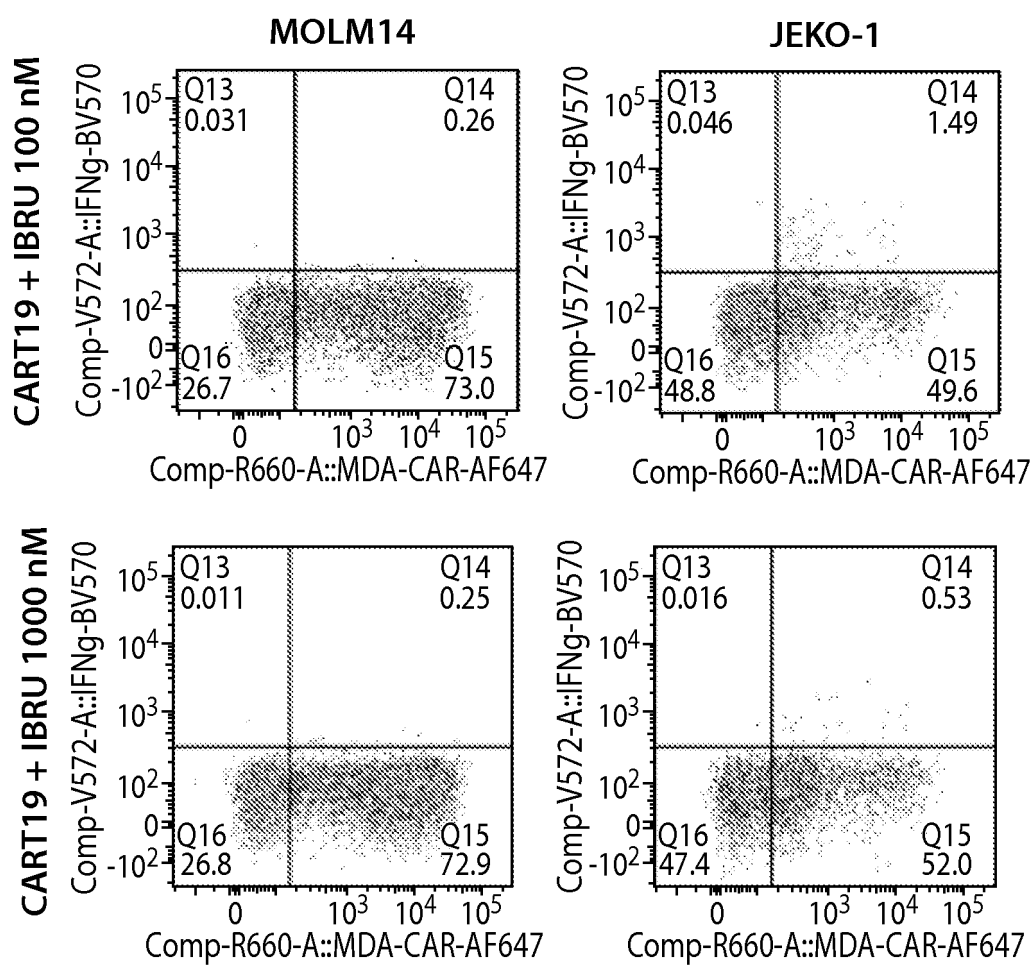
INTRA CYTOPLASMATIC IFN γ PRODUCTION

FIG. 14-5

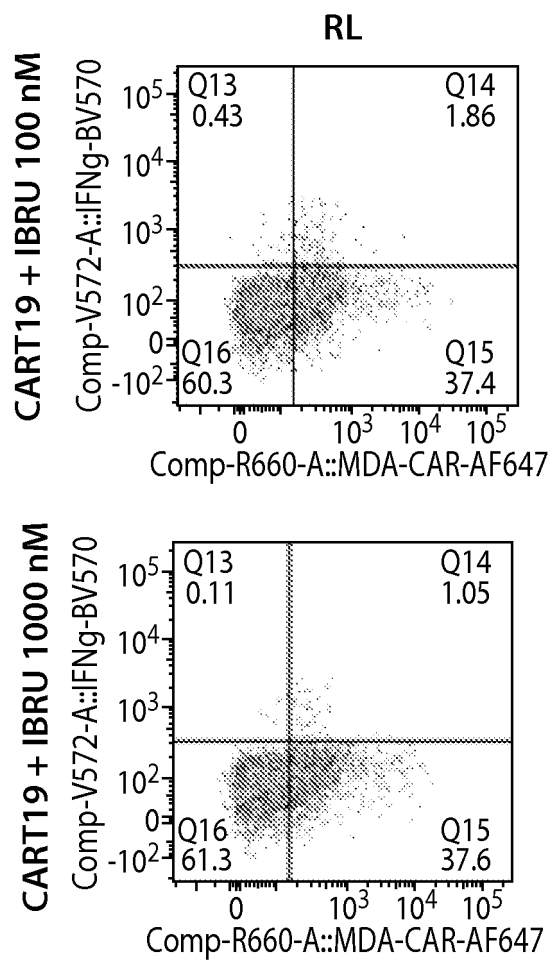
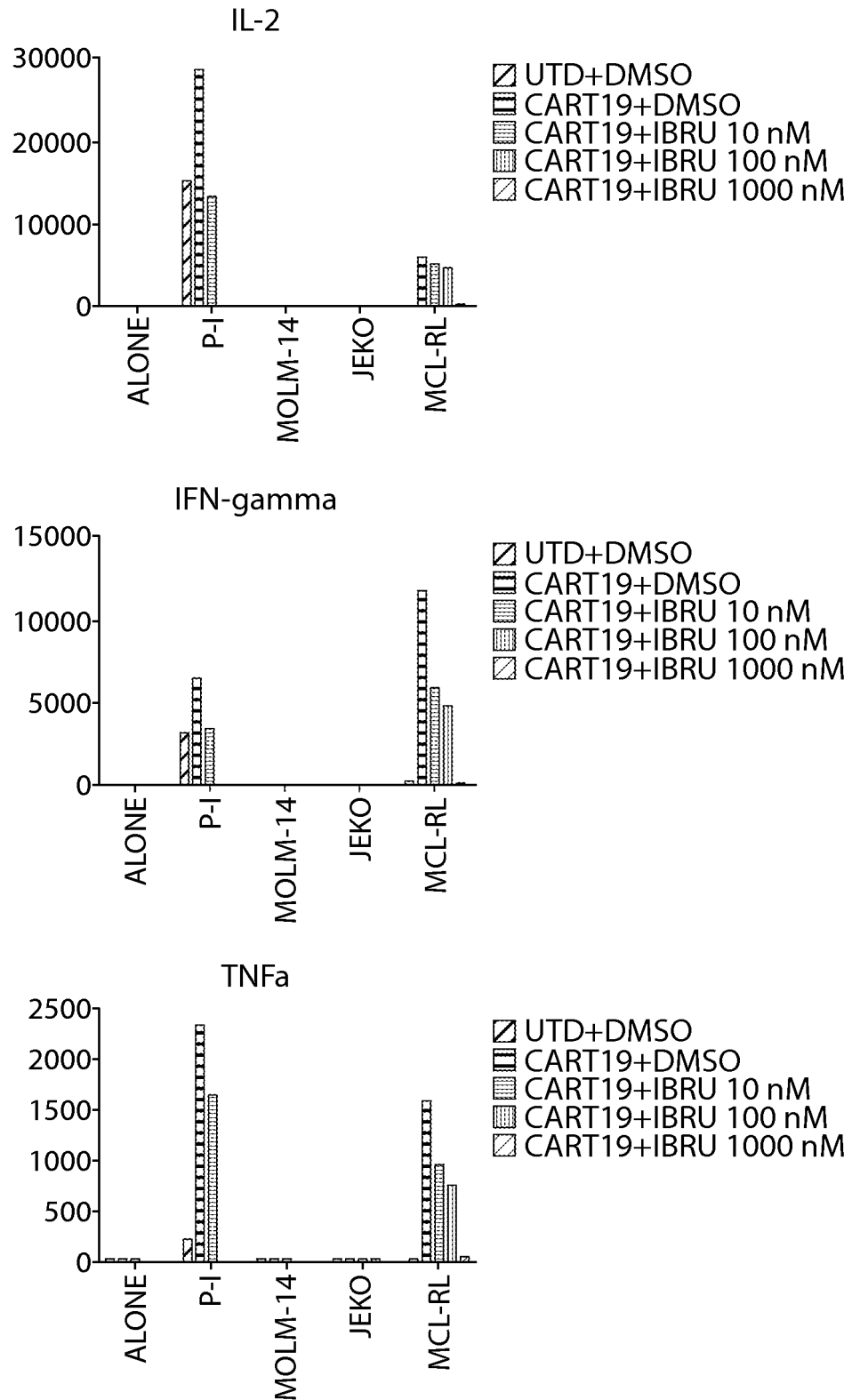
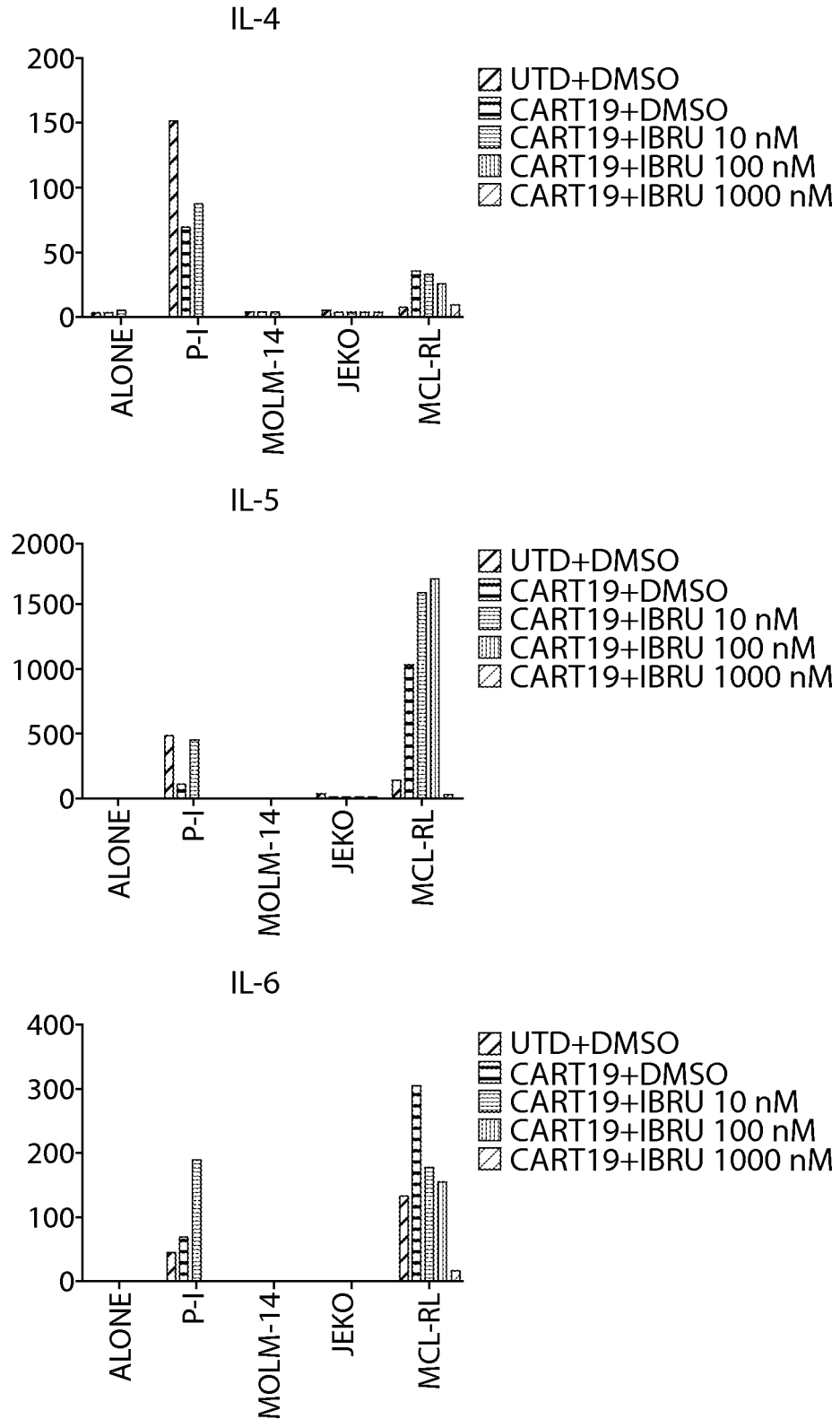
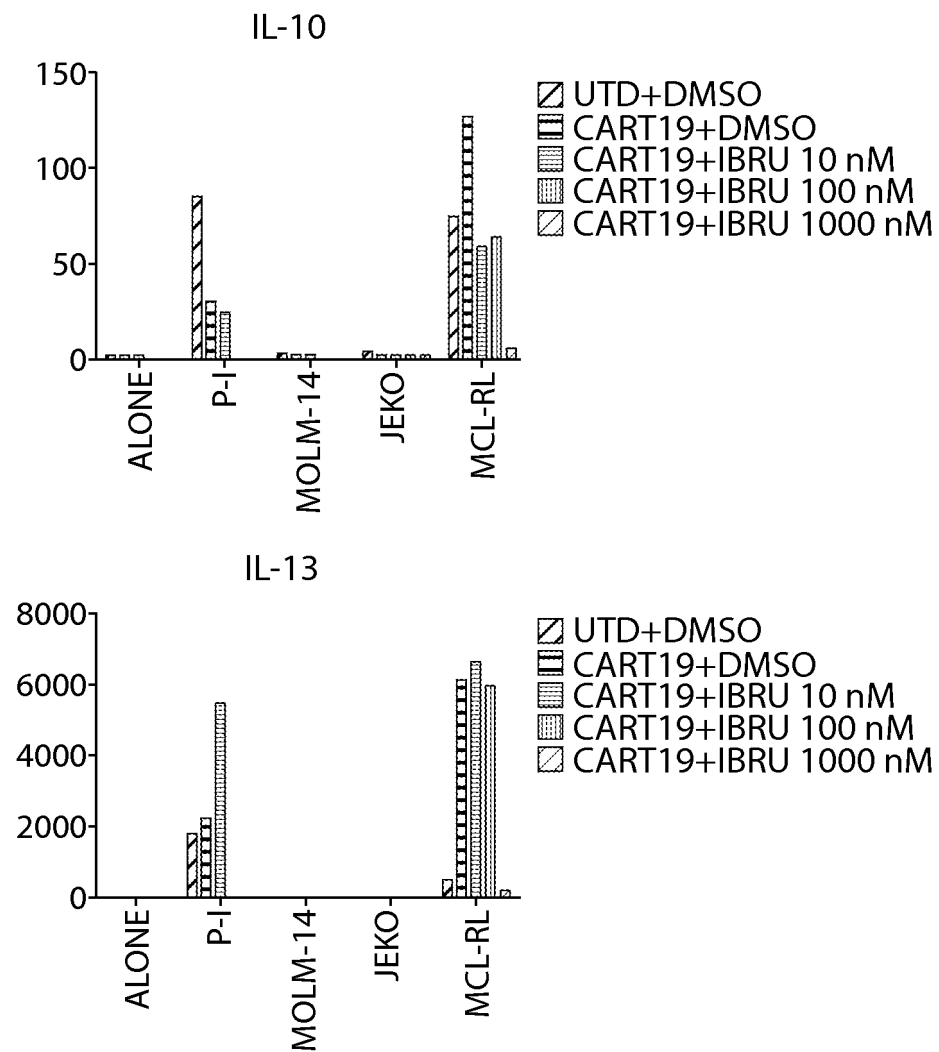
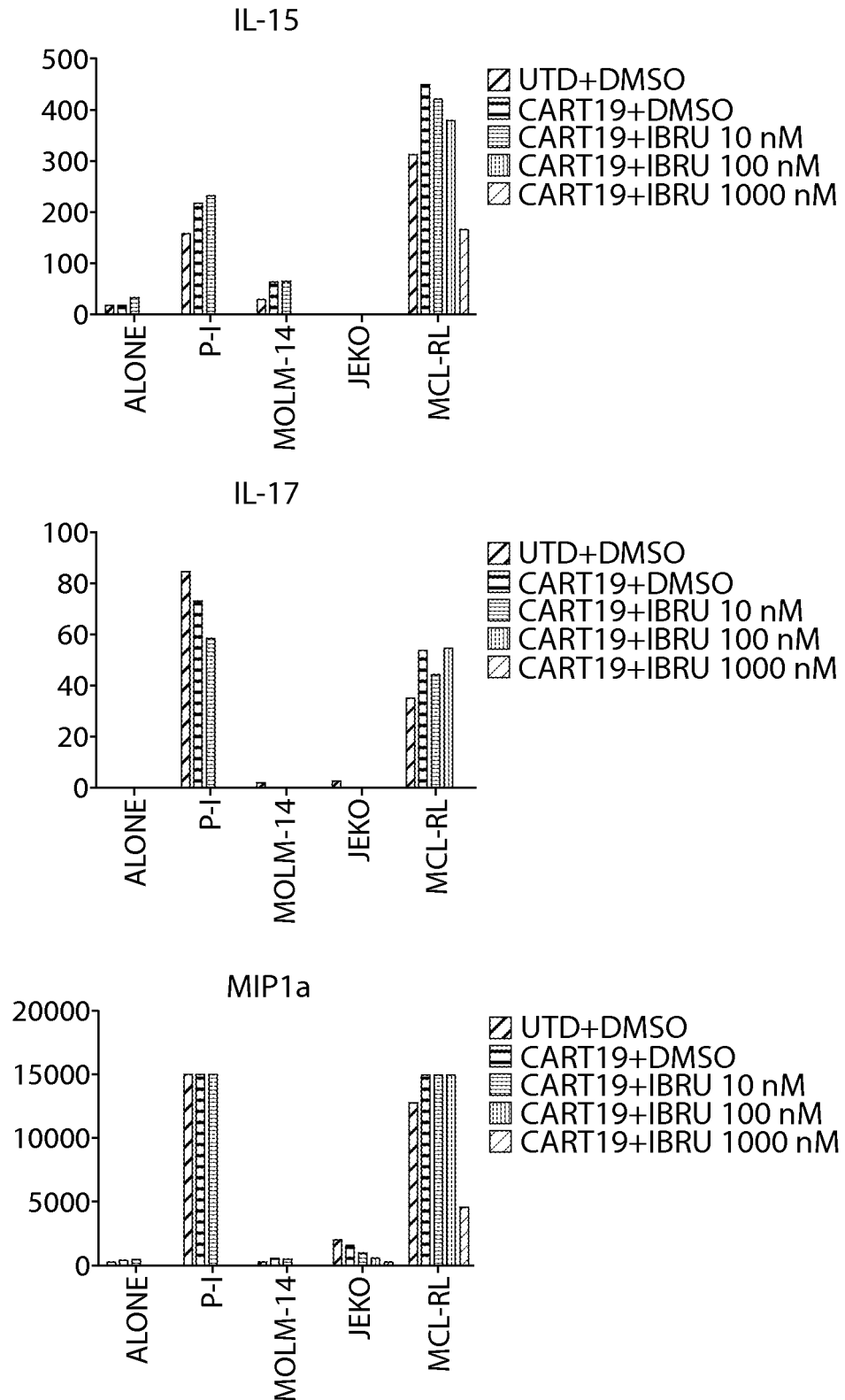
INTRA CYTOPLASMATIC IFN γ PRODUCTION

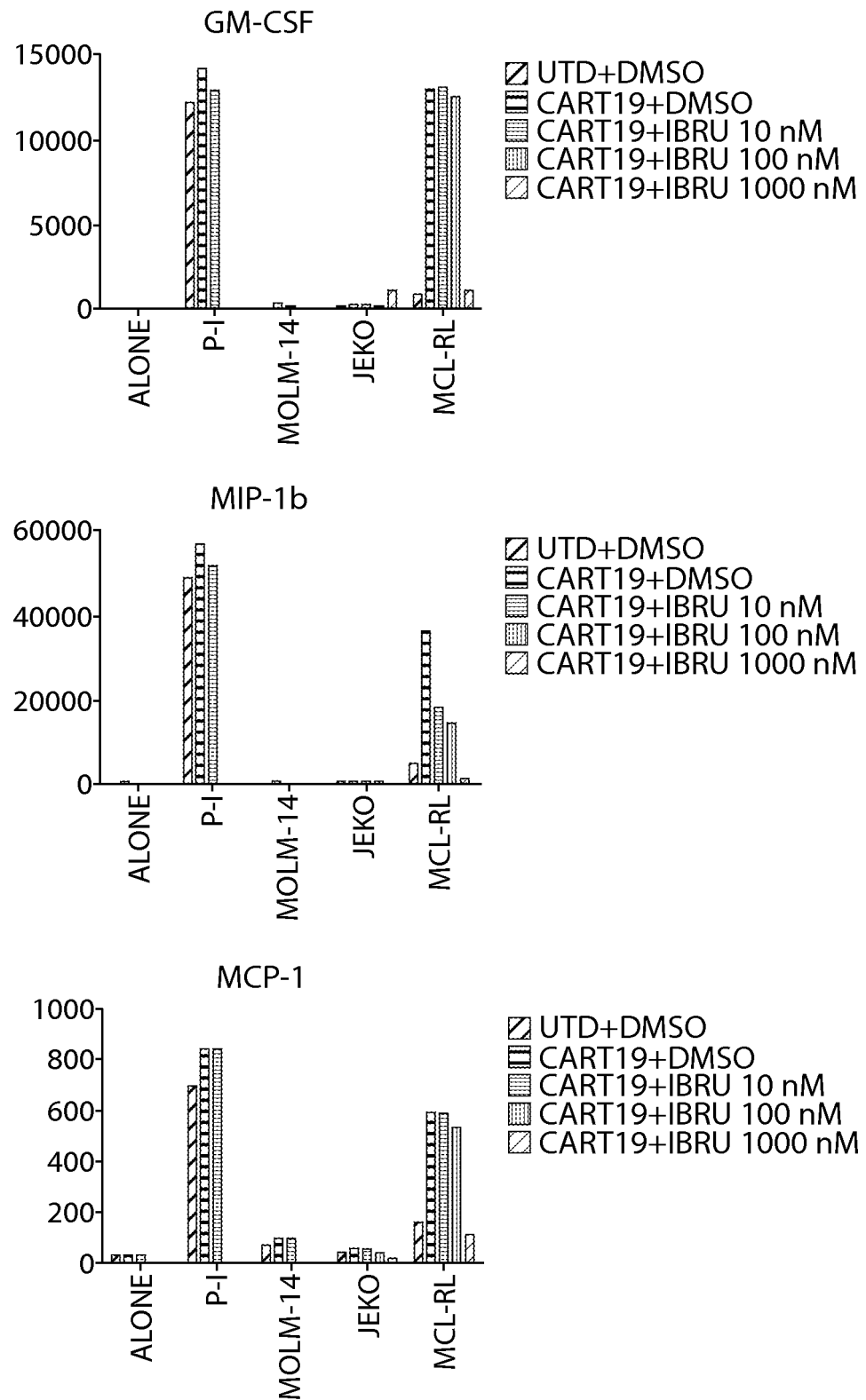
FIG. 14-6

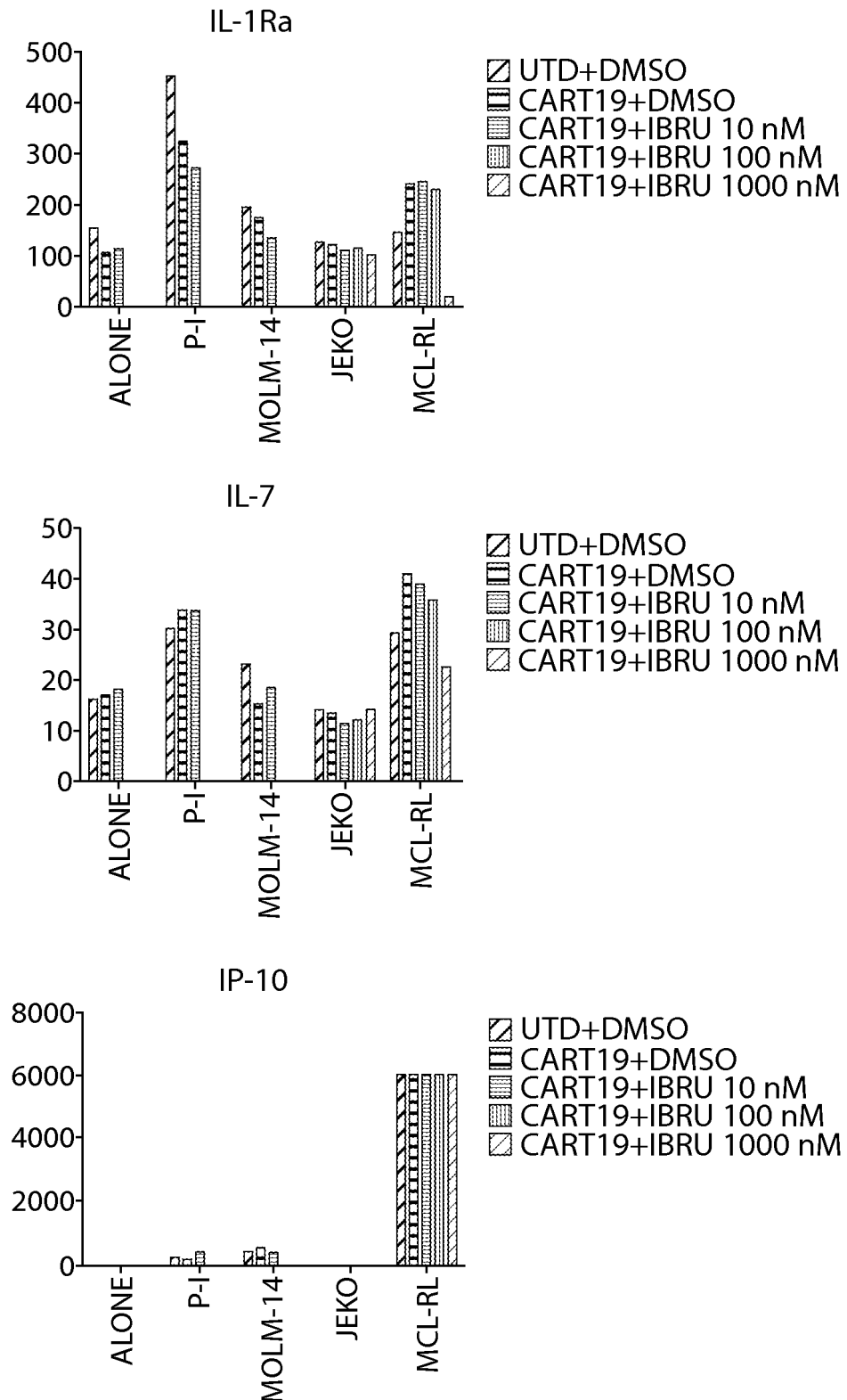
72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-1****FIG. 15-1**

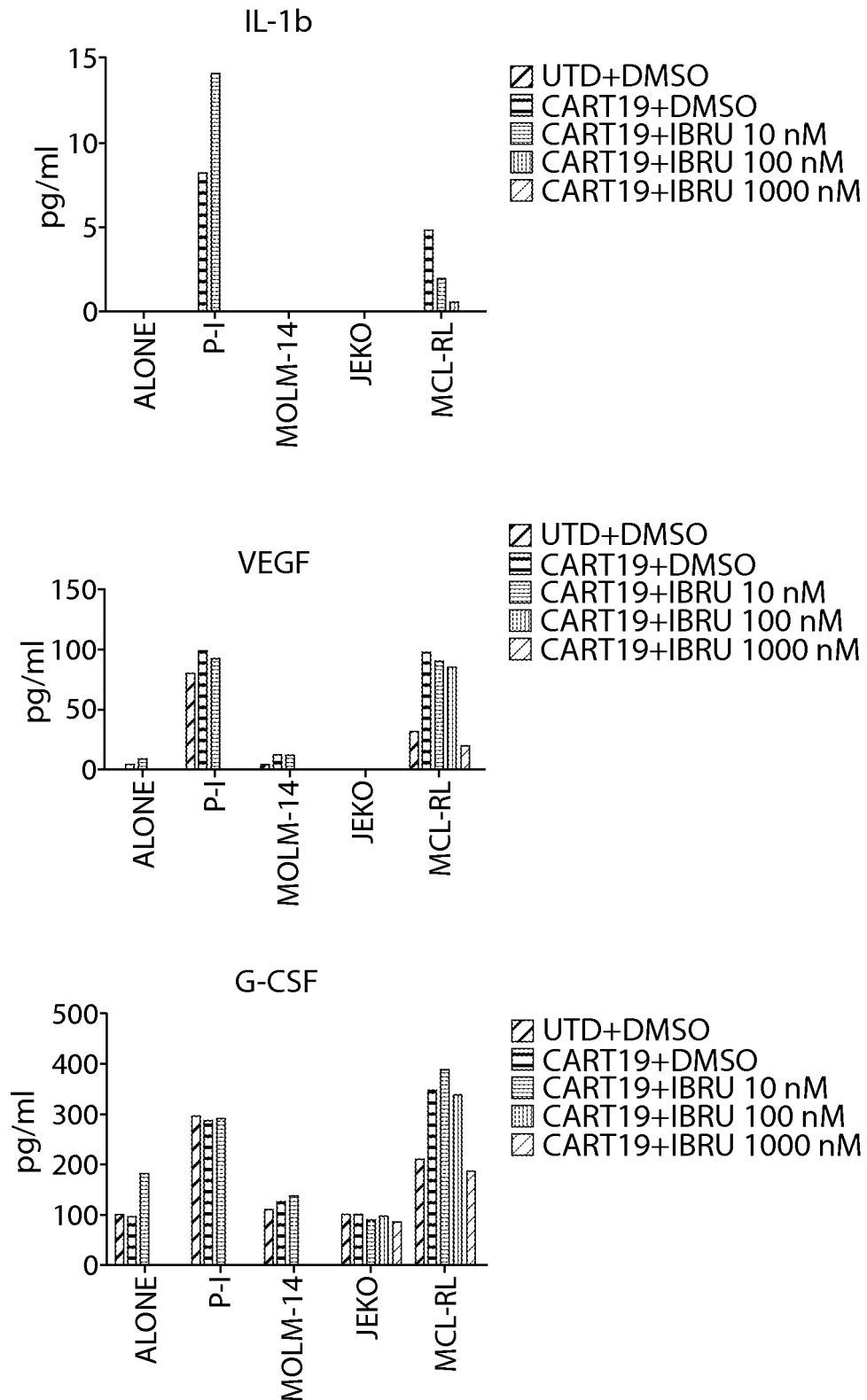
72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-2**

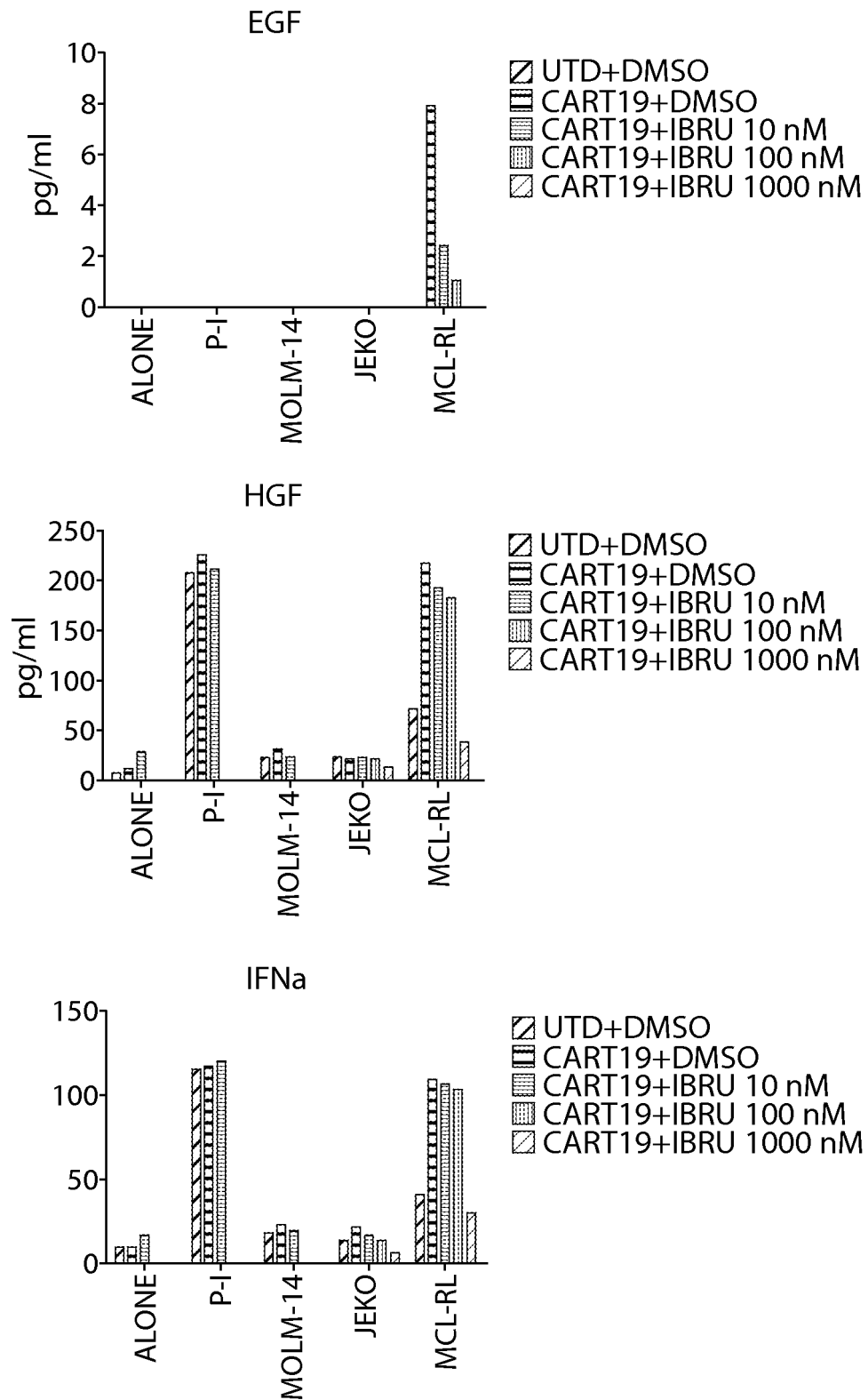
72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-3**

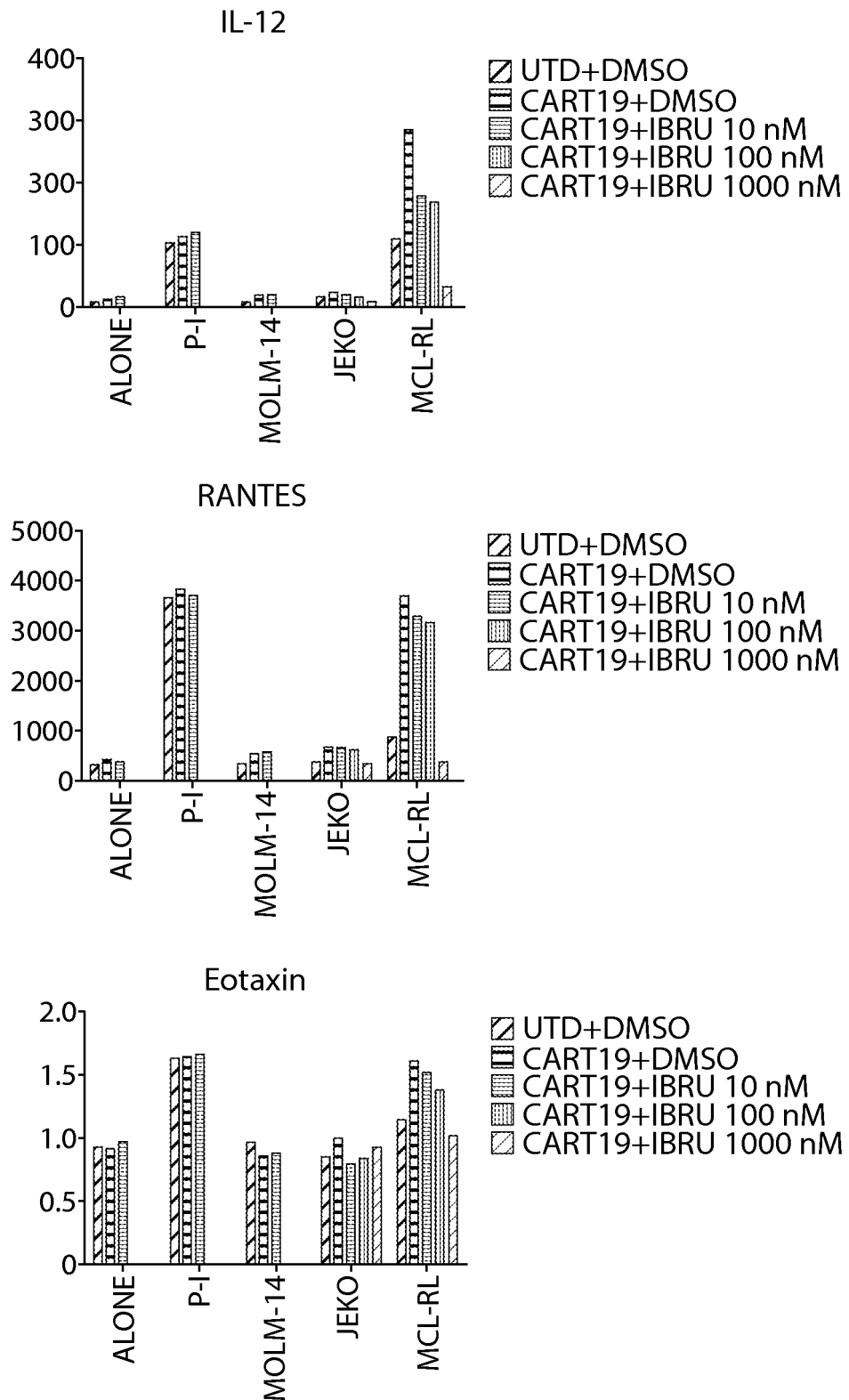
72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-4**

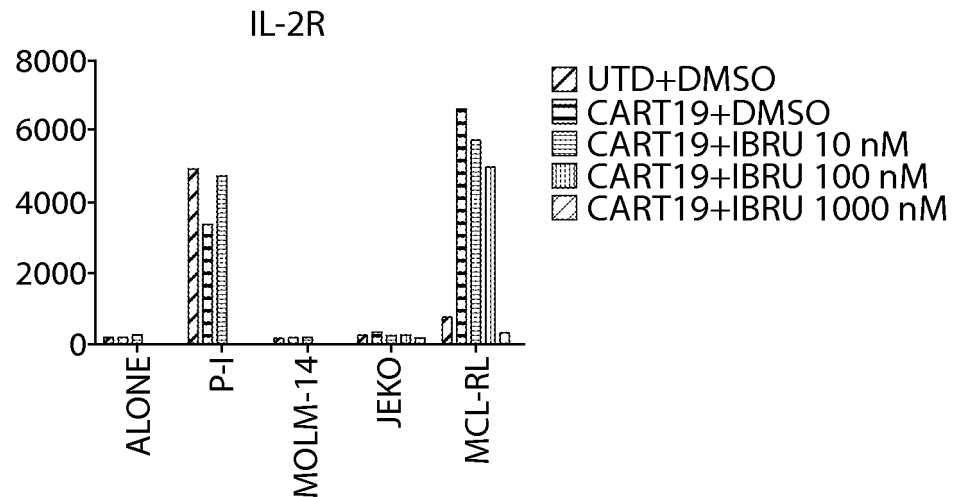
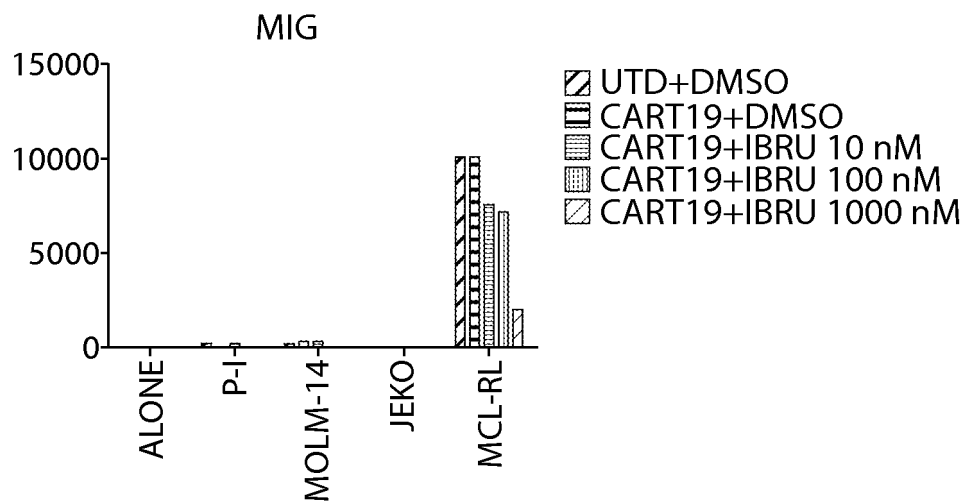
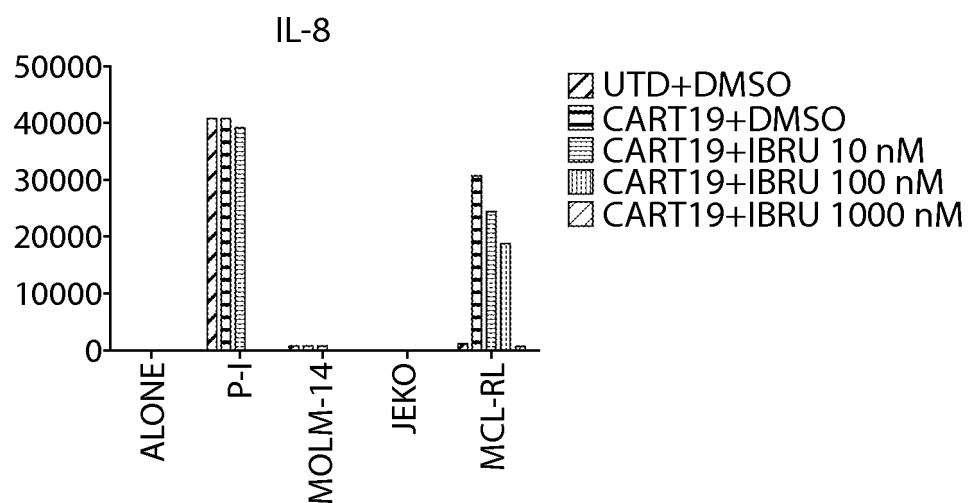
72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-5**

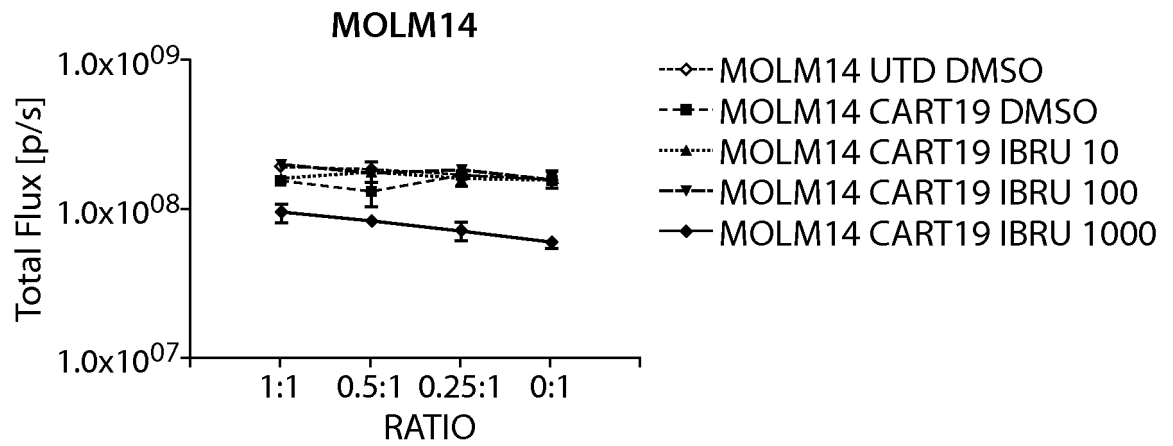
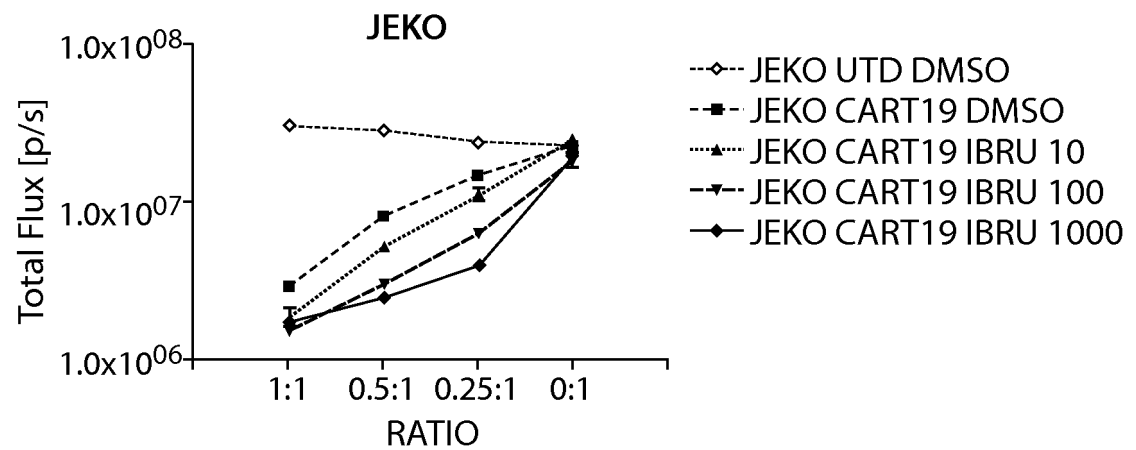
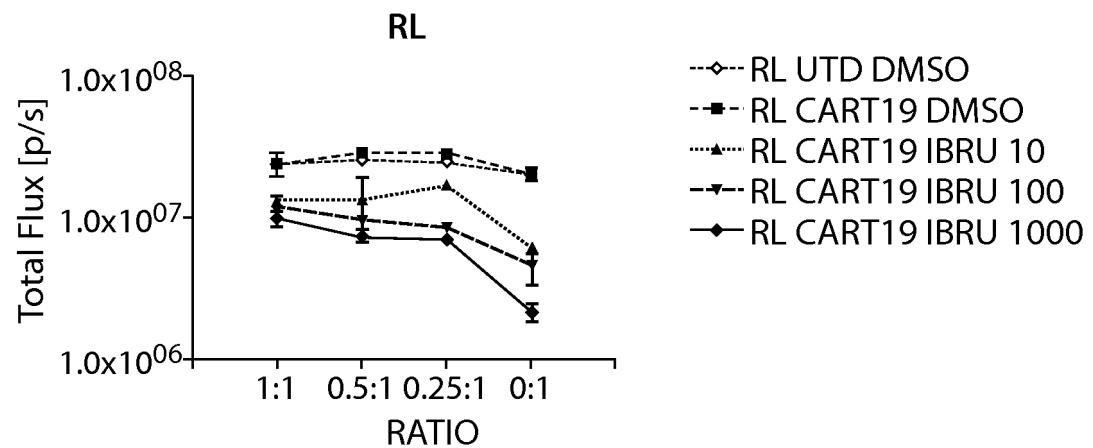
72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-6**

72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-7**

72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-8**

72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-9**

72 HR CYTOKINE SECRETION (30-plex LUMINEX)**Th-2****FIG. 15-10**

**FIG. 16A****FIG. 16B****FIG. 16C**

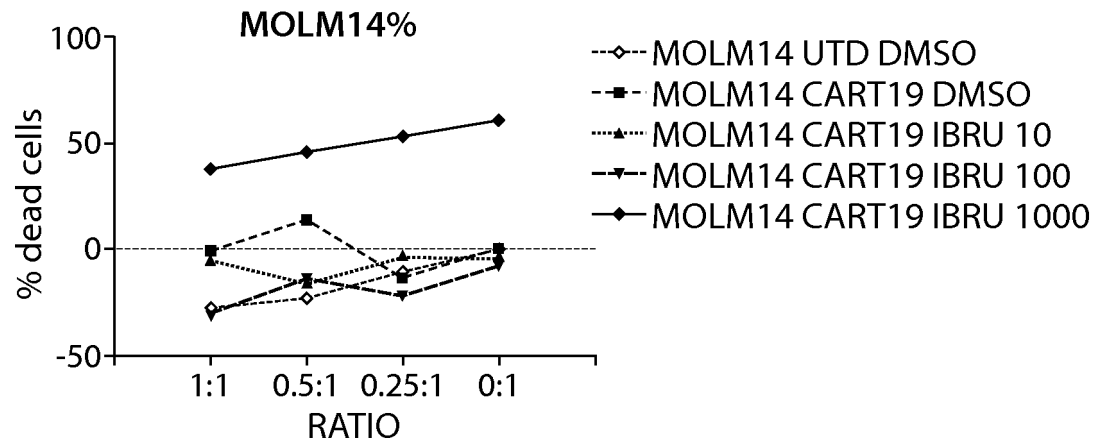


FIG. 16D

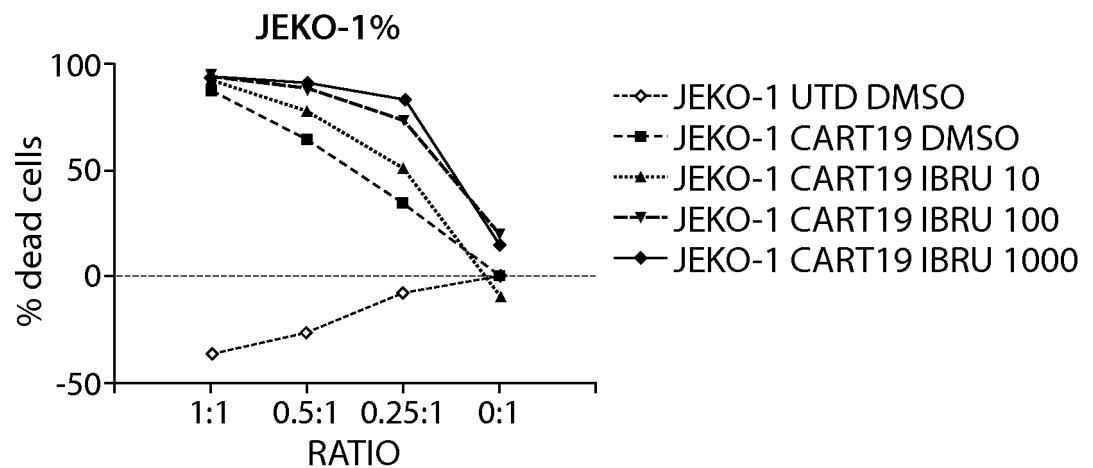


FIG. 16E

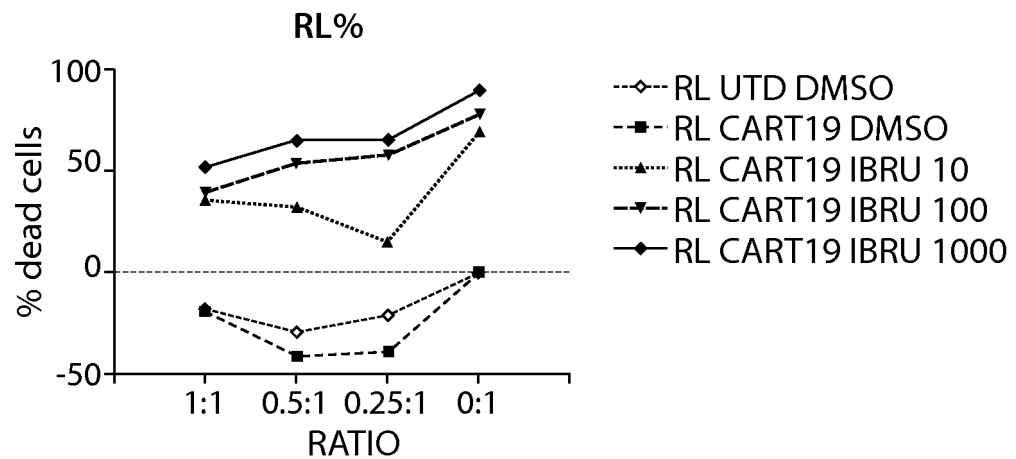


FIG. 16F

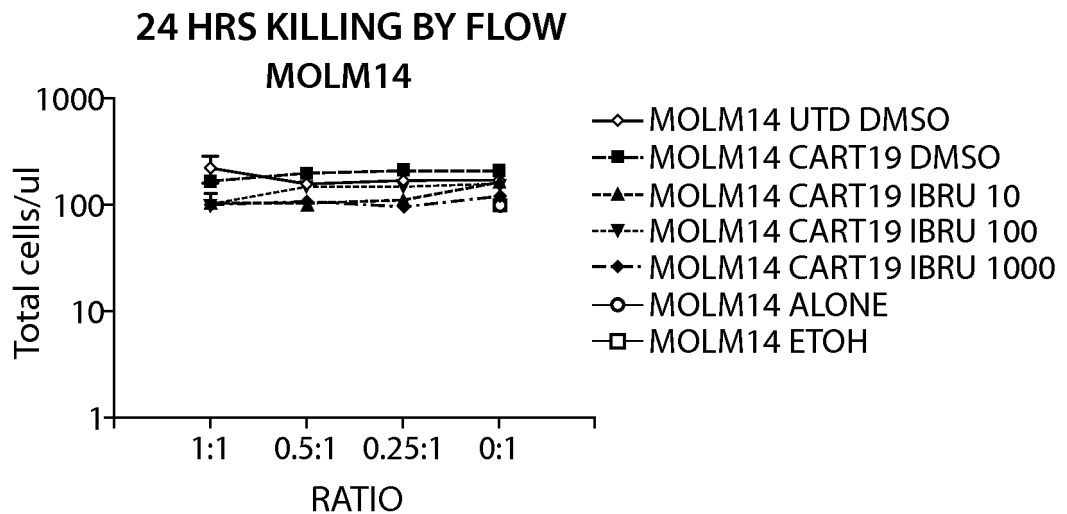


FIG. 17A

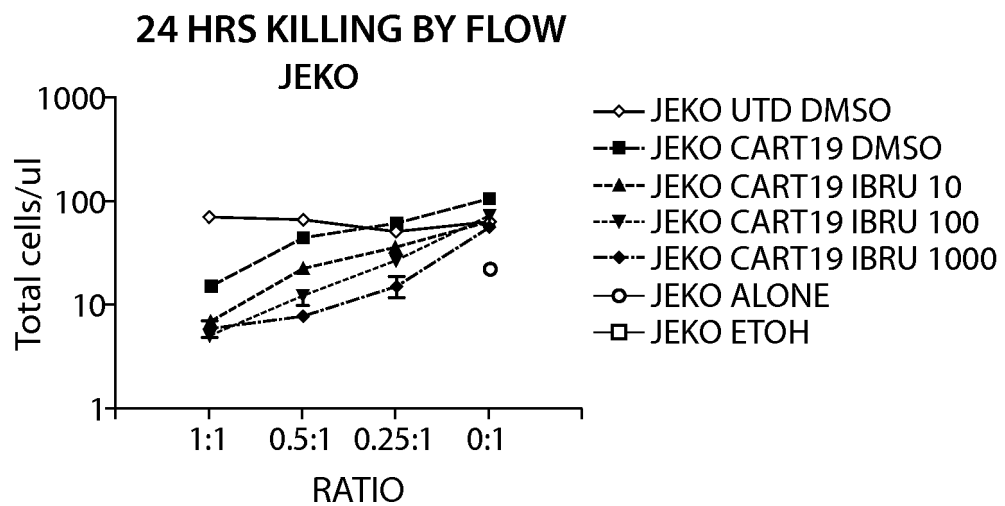


FIG. 17B

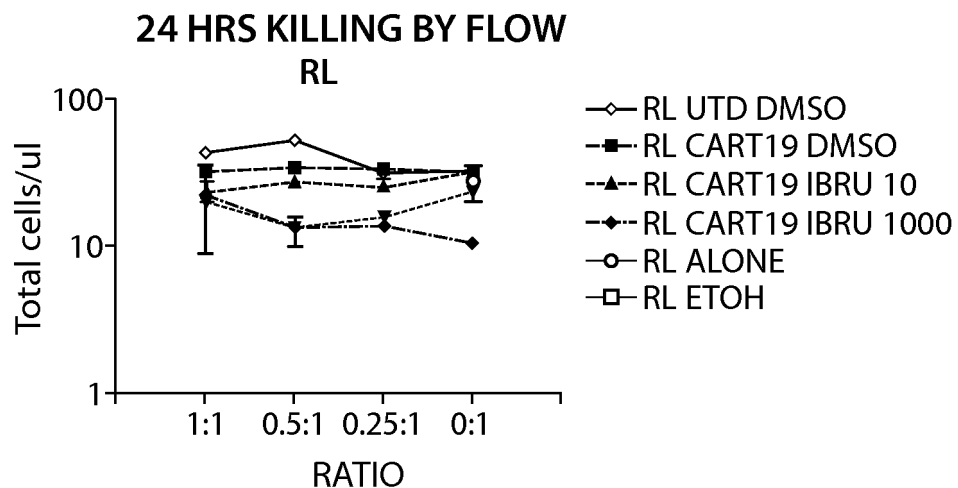
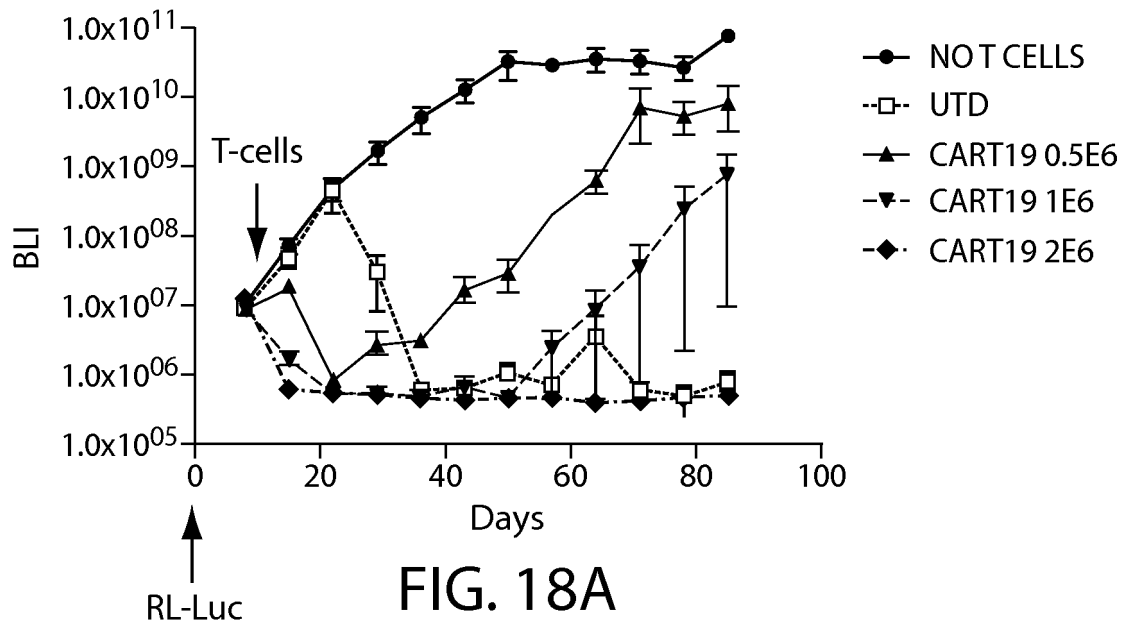


FIG. 17C

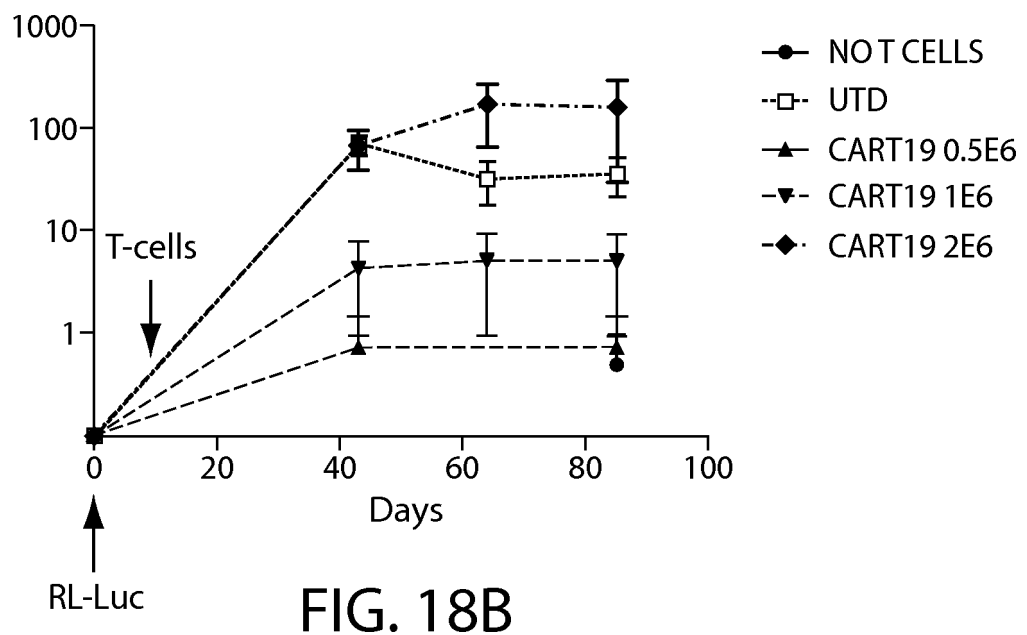
CART19 dose finding in RL MCL model: MCL-1

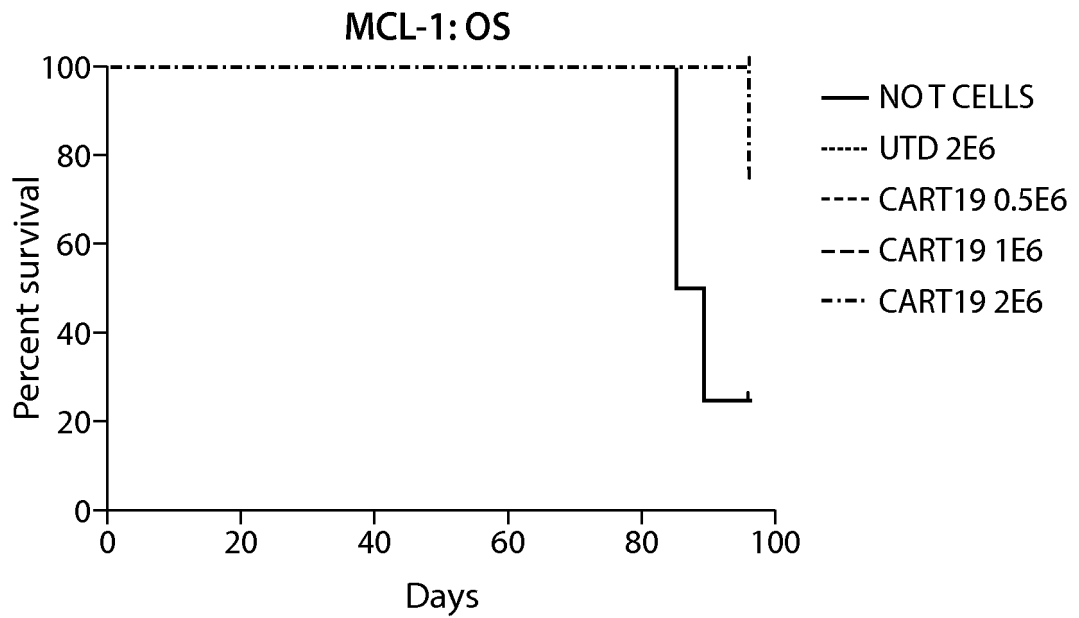
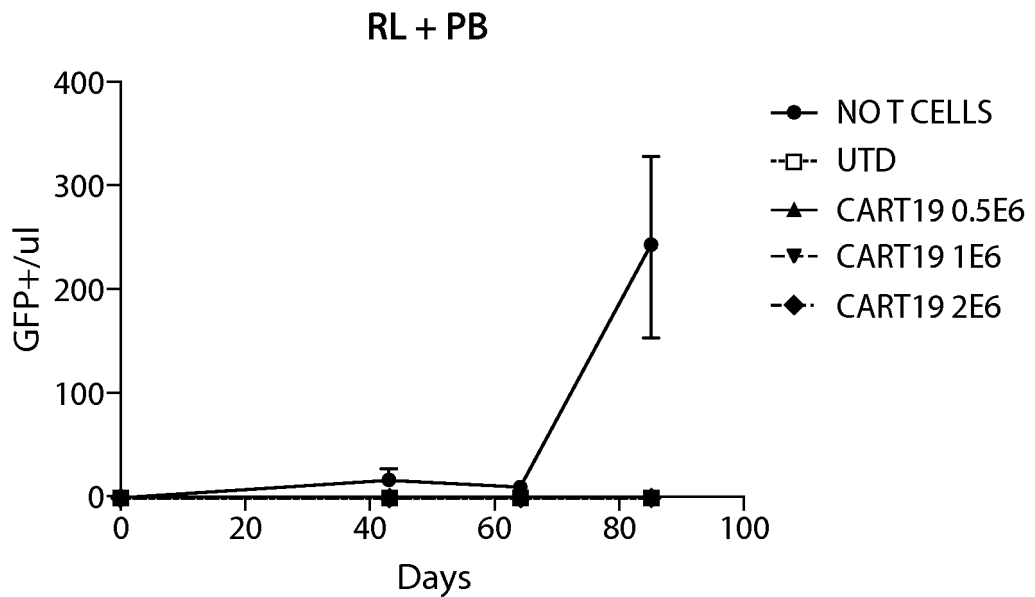
MCL-1 BLI

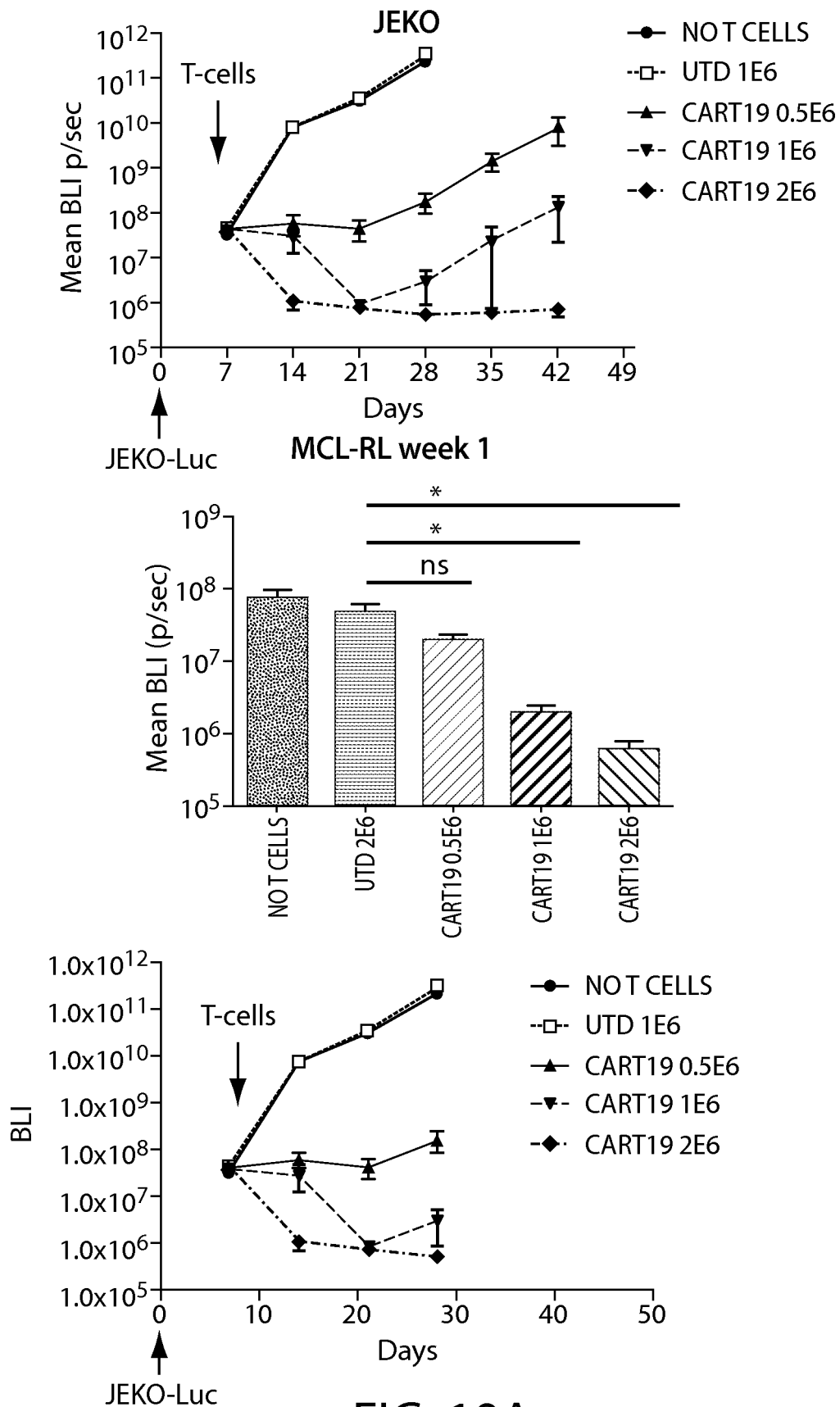


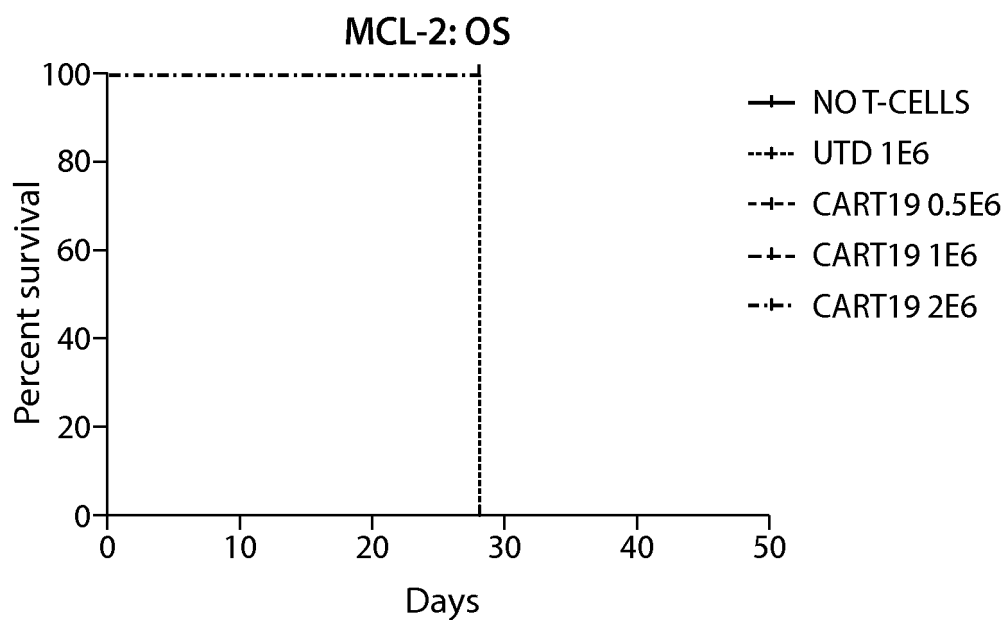
CART19 dose finding in RL MCL model: MCL-1

MCL-1 BLI



CART19 dose finding in RL MCL model: MCL-1**FIG. 18C****CART19 dose finding in RL MCL model: MCL-1****FIG. 18D**

CART19 dose finding in JEKO-1 MCL model: MCL-2**FIG. 19A**

CART19 dose finding in RL MCL model: MCL-1**FIG. 19B**

In-vivo Activity of CART19 and Ibrutinib: MCL-3,4,5

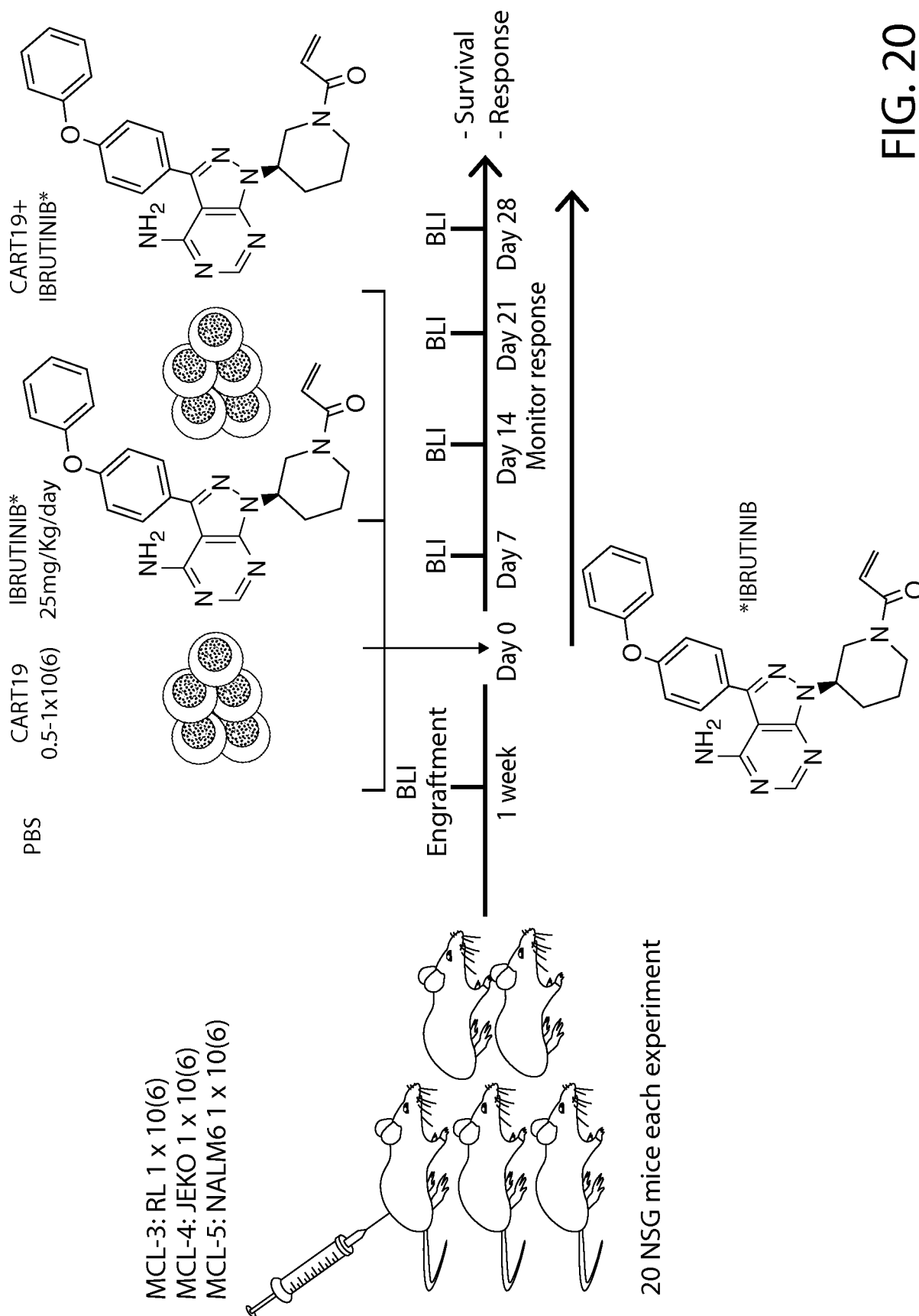


FIG. 20

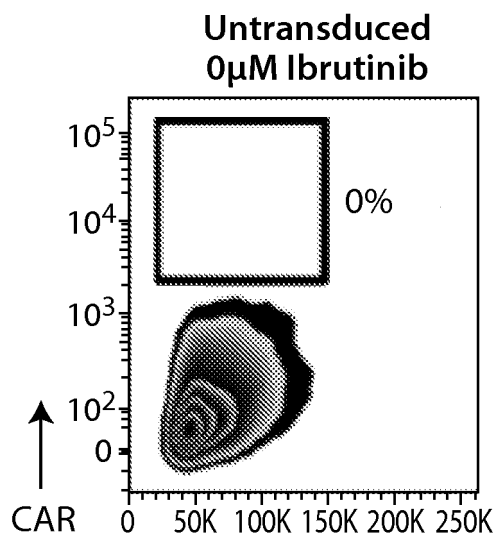


FIG. 21A

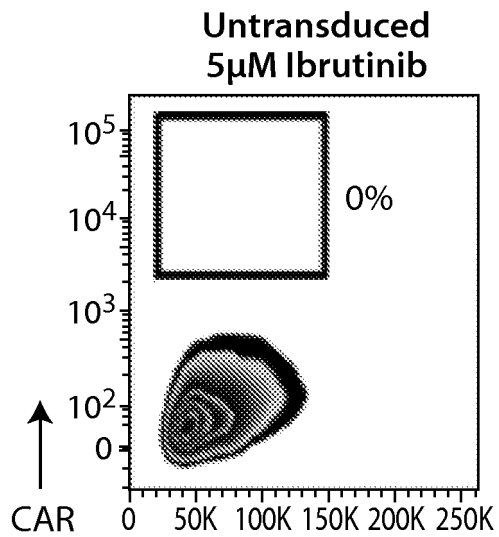


FIG. 21B

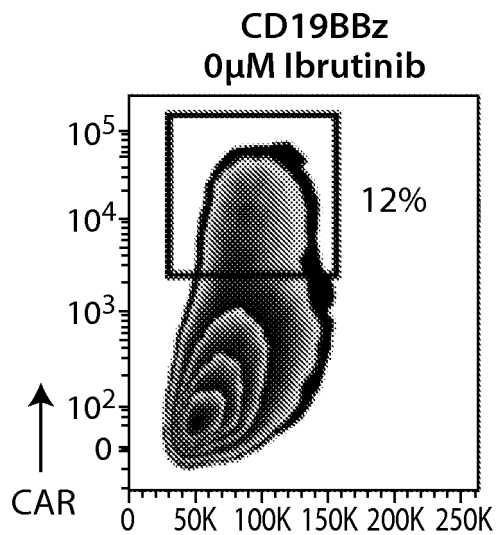


FIG. 21C

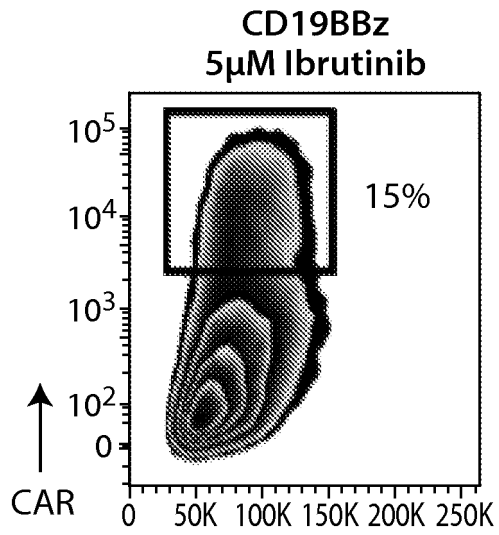


FIG. 21D

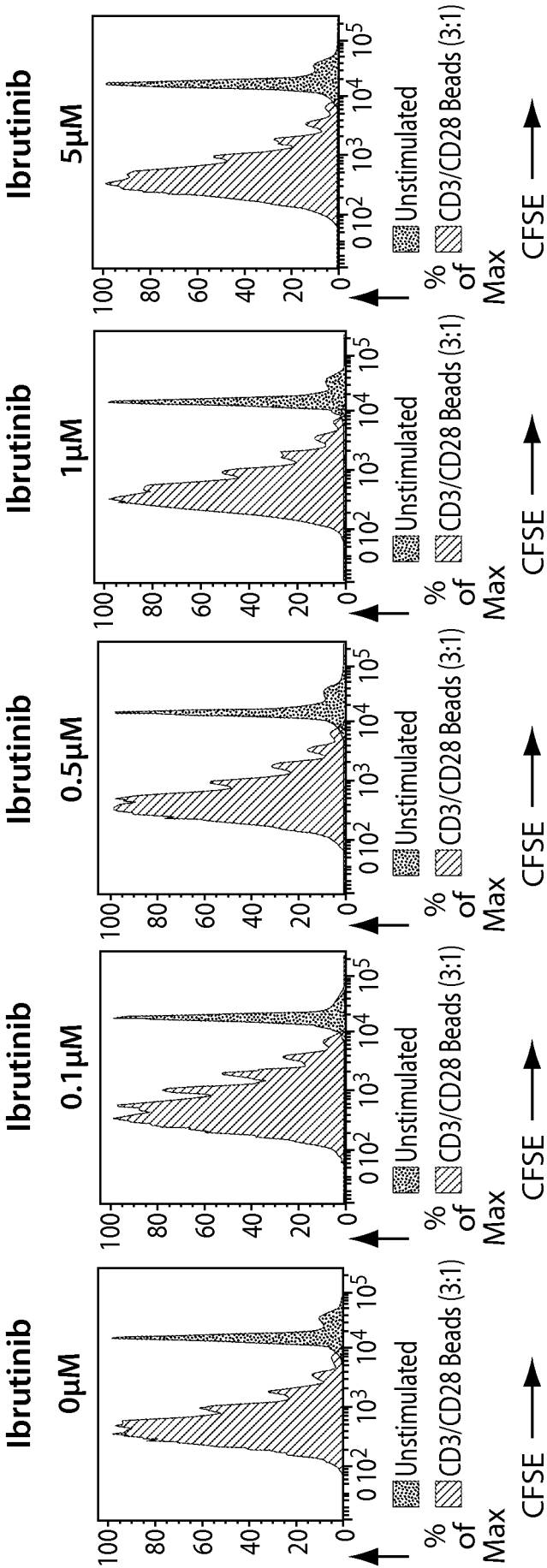


FIG. 22A

FIG. 22B

FIG. 22C

FIG. 22D

FIG. 22E

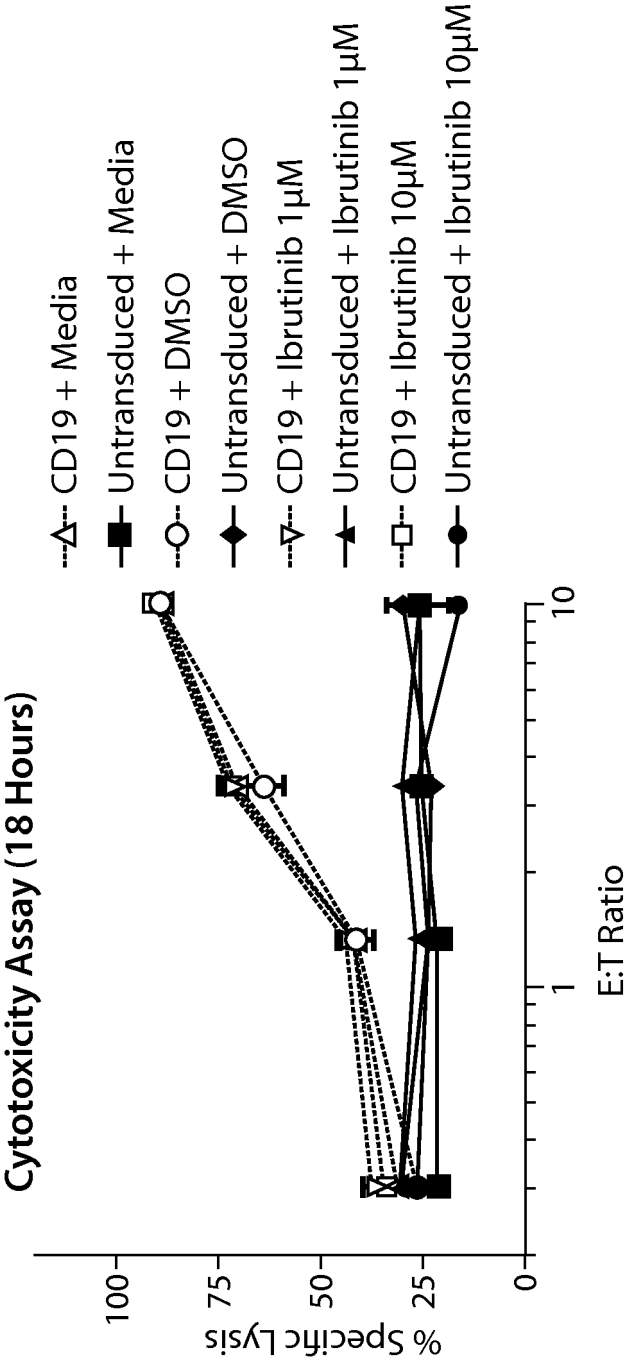


FIG. 23

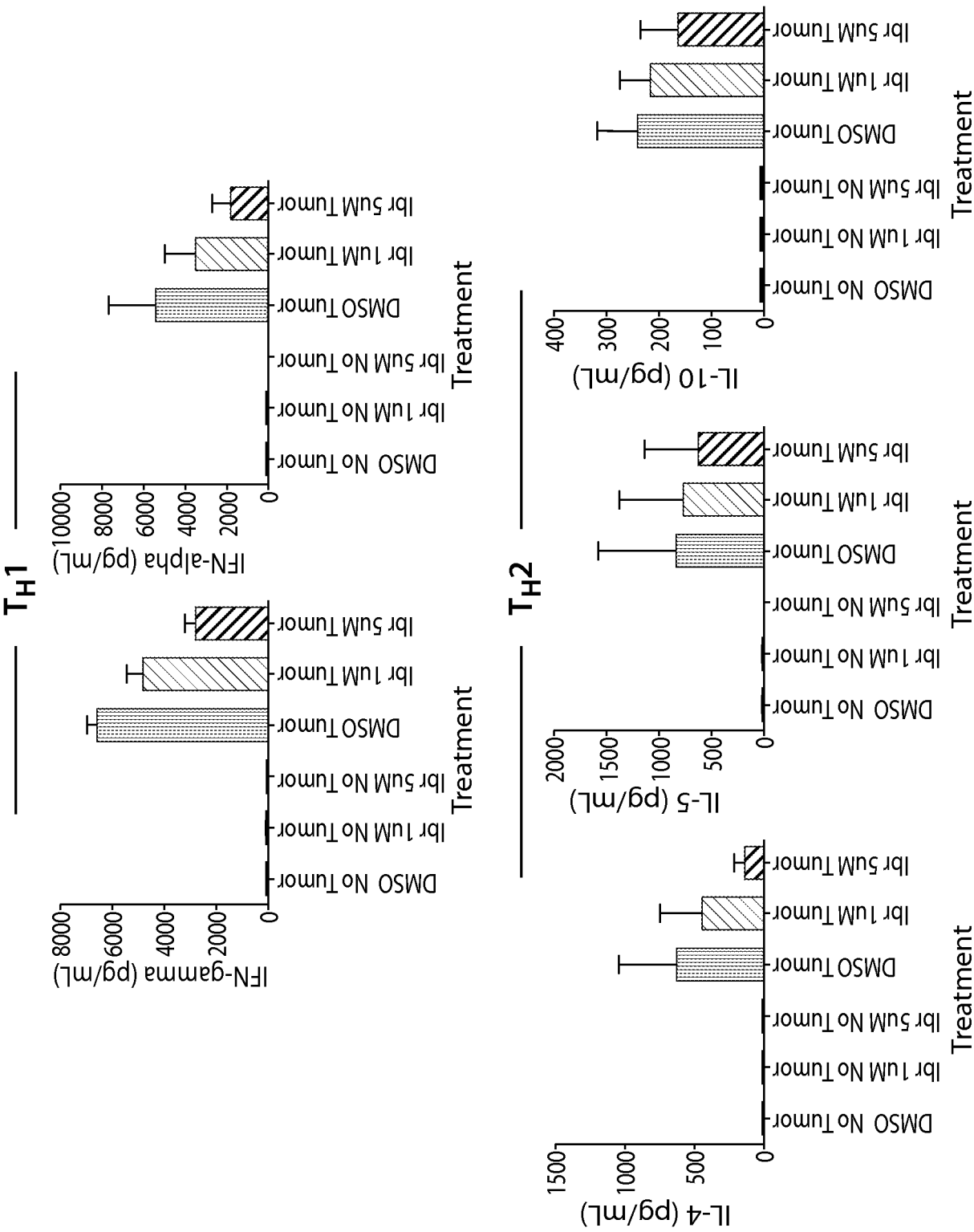


FIG. 24

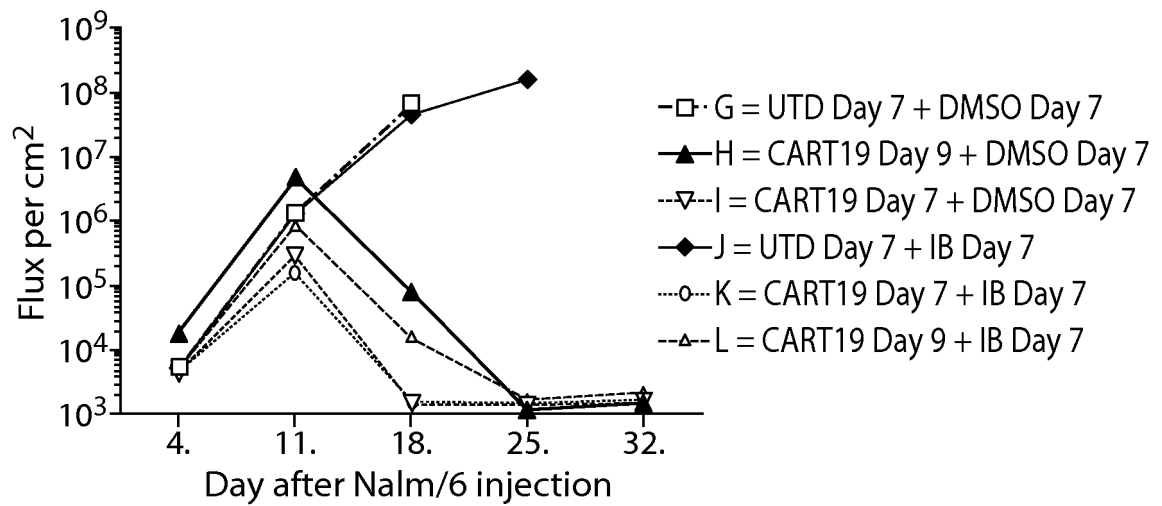


FIG. 25A

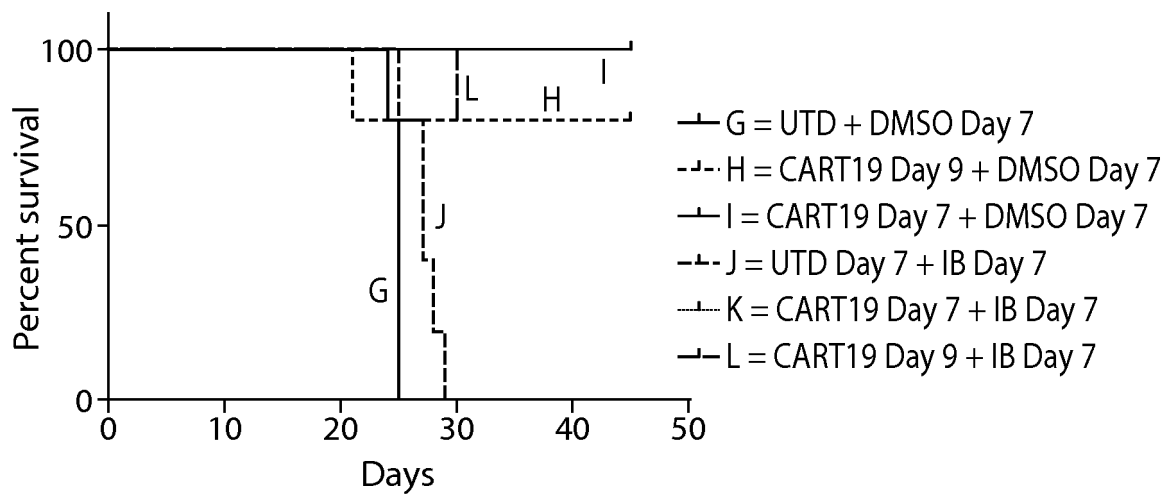


FIG. 25B

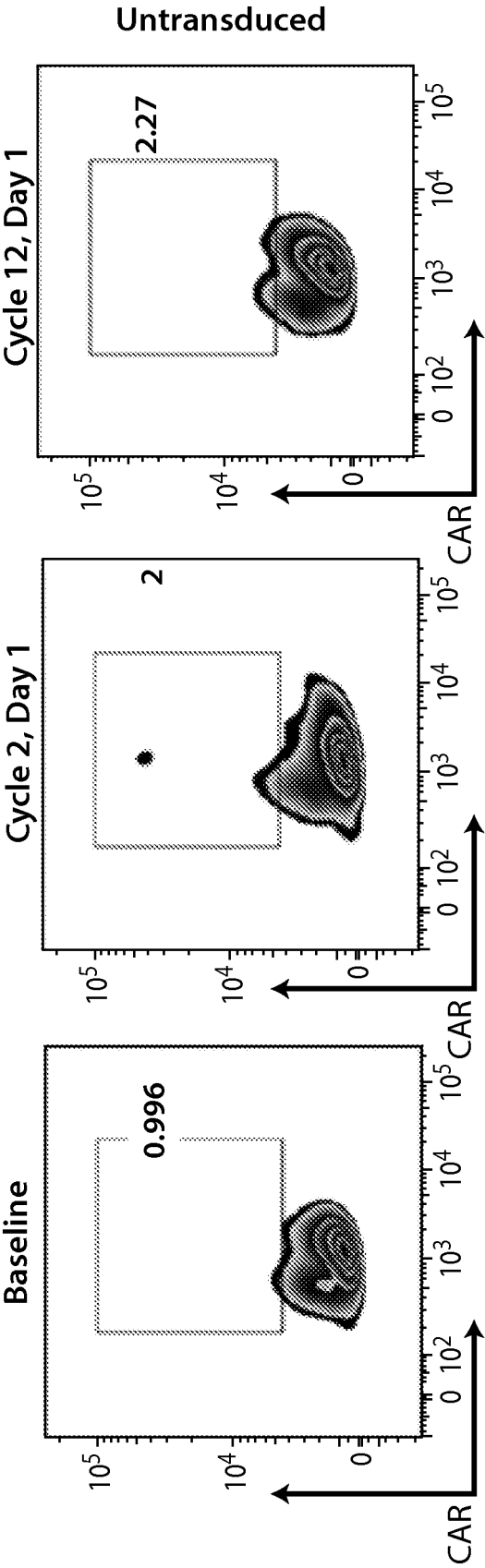


FIG. 26A

FIG. 26B

FIG. 26C

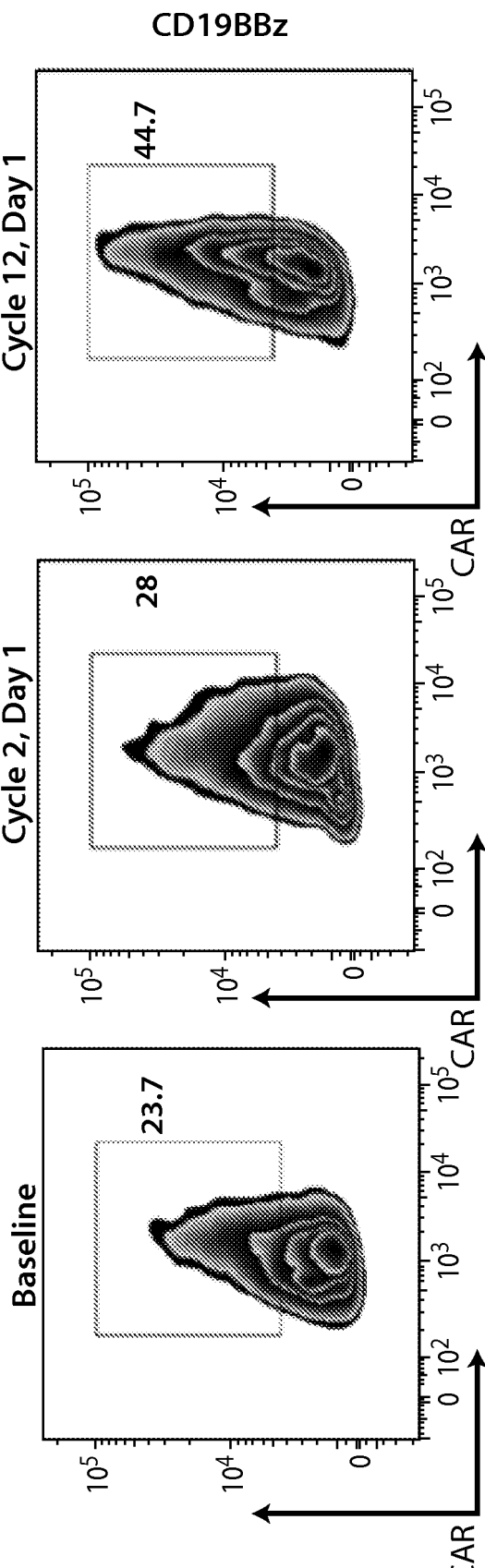


FIG. 26D

FIG. 26E

FIG. 26F

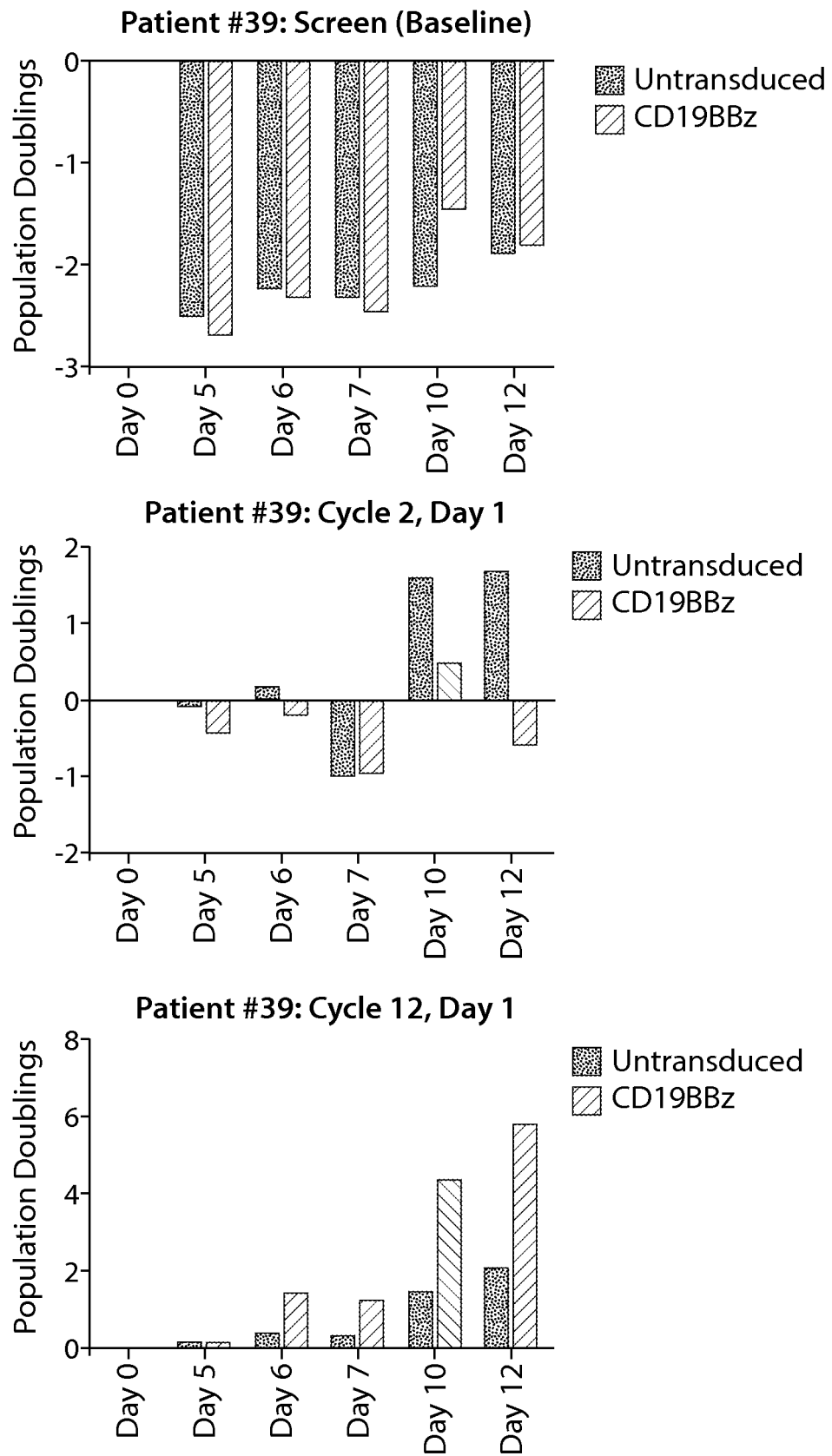


FIG. 27-1

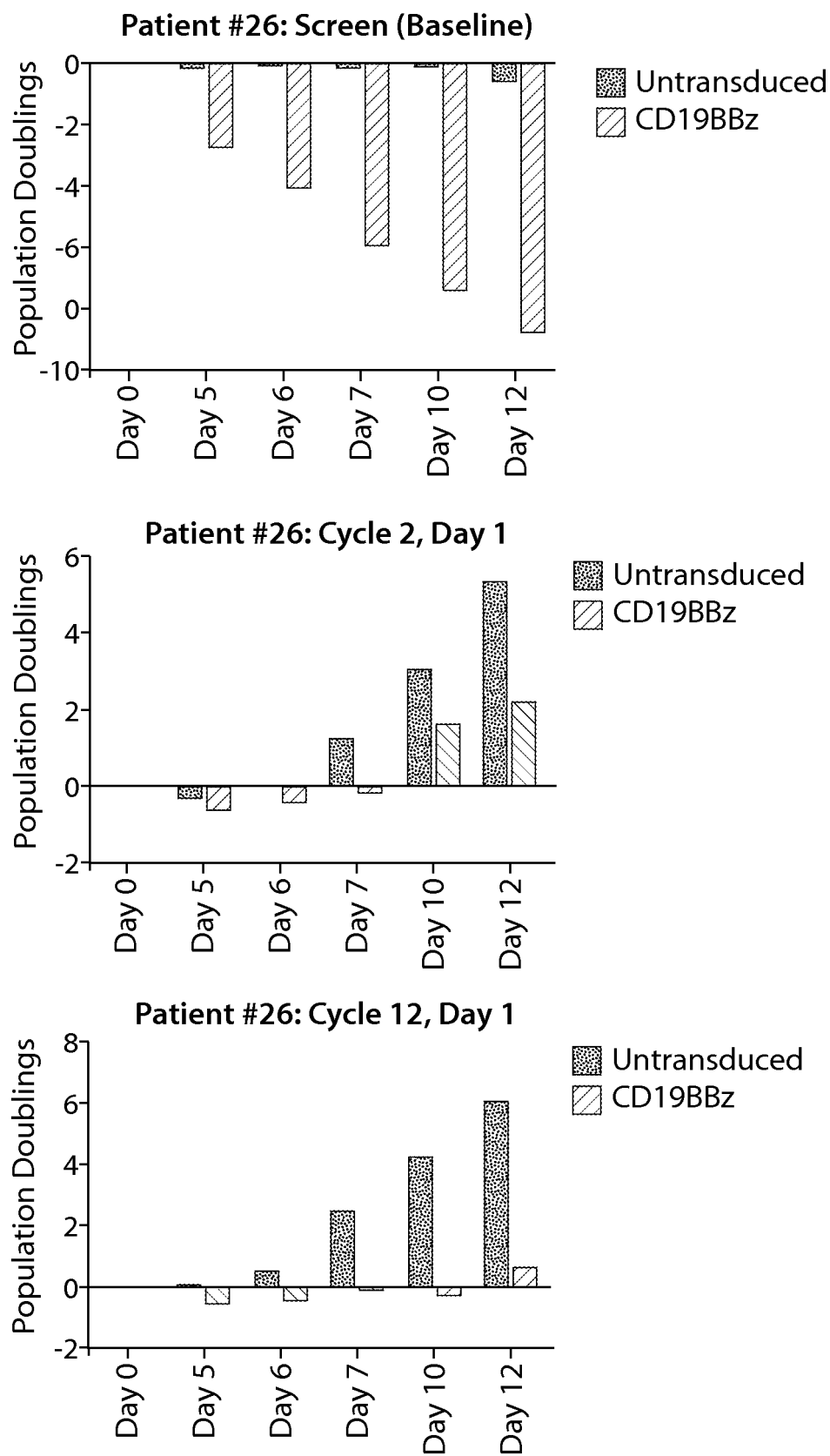


FIG. 27-2

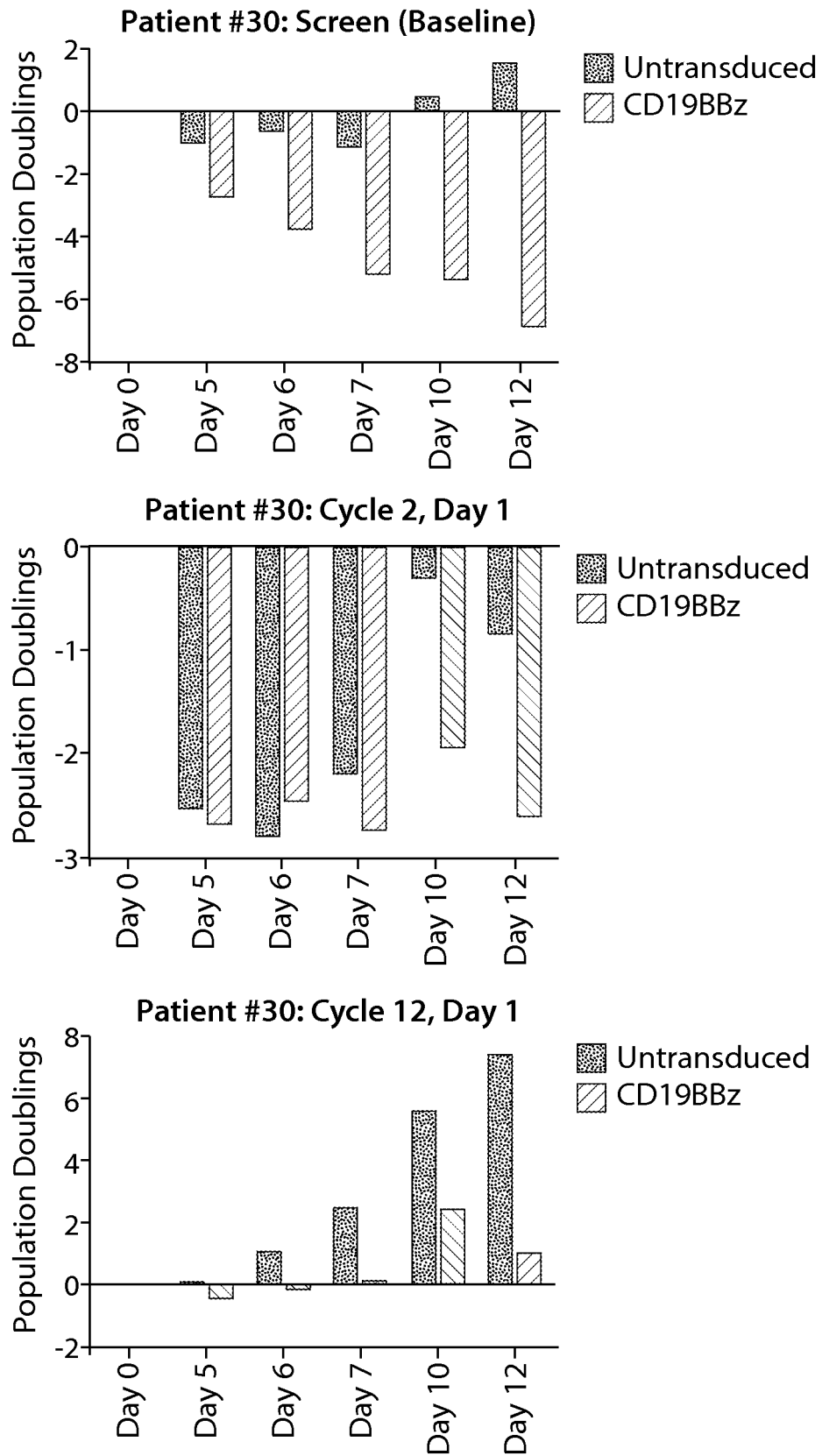
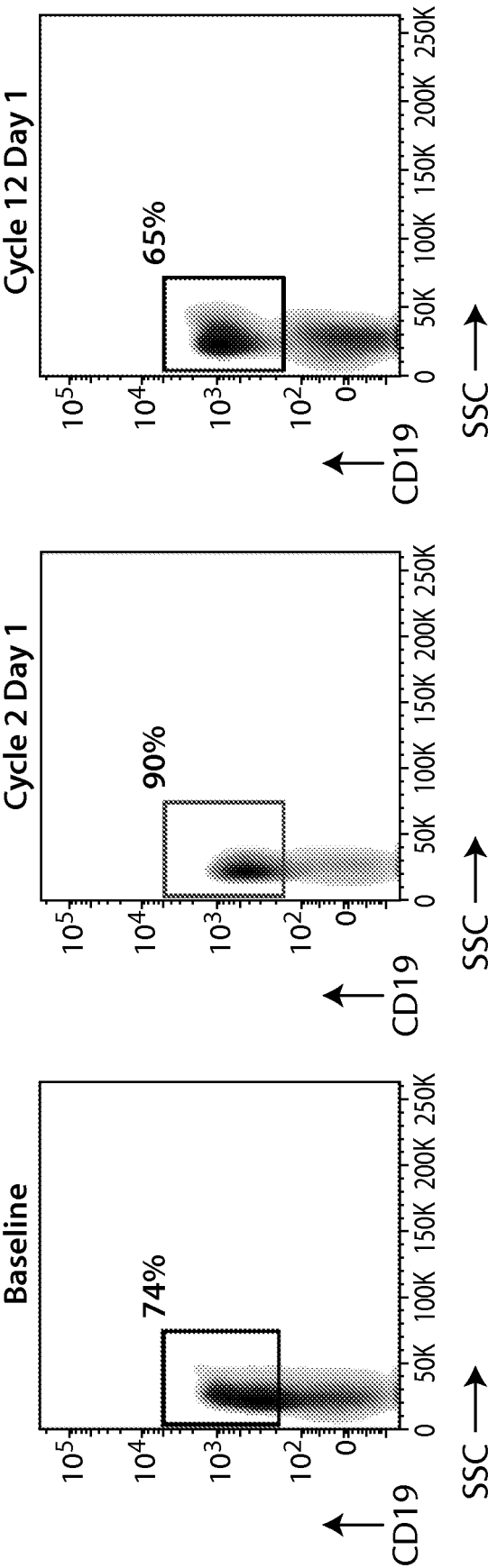


FIG. 27-3



Gated on singlets, fsc-ssc, annexin-

Gated on singlets, fsc-ssc, annexin-

Gated on singlets, fsc-ssc, annexin-

FIG. 28C

FIG. 28B

FIG. 28A

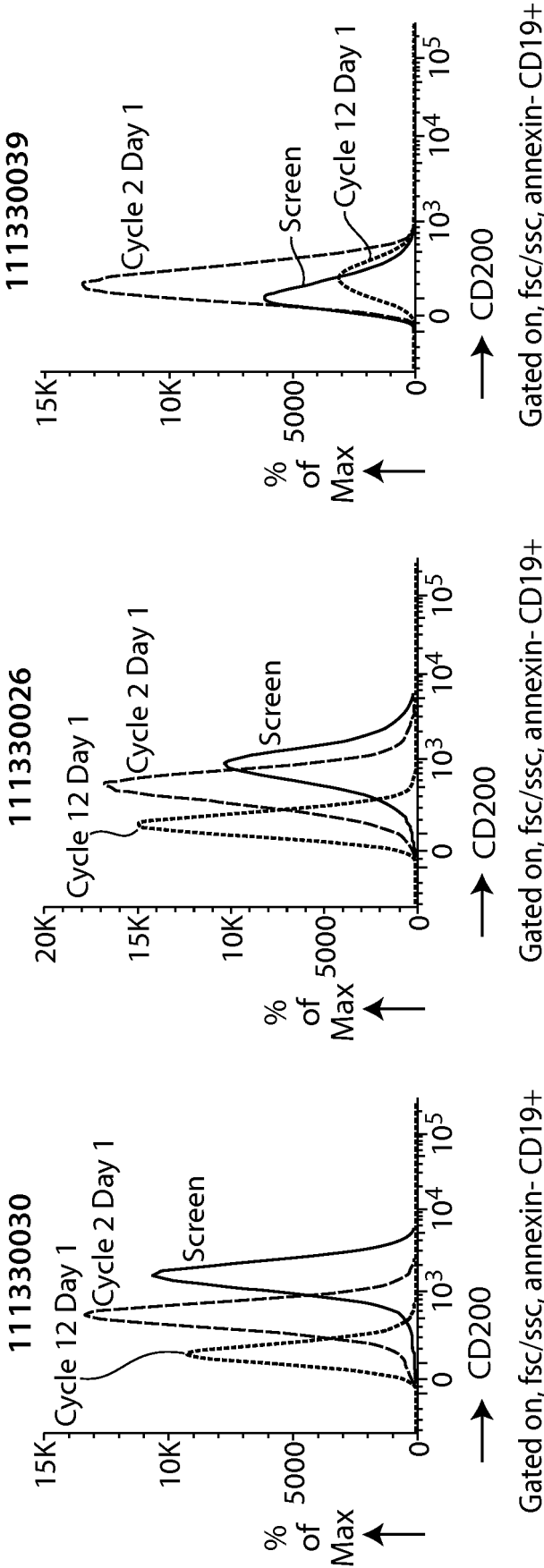


FIG. 29A

FIG. 29B

FIG. 29C

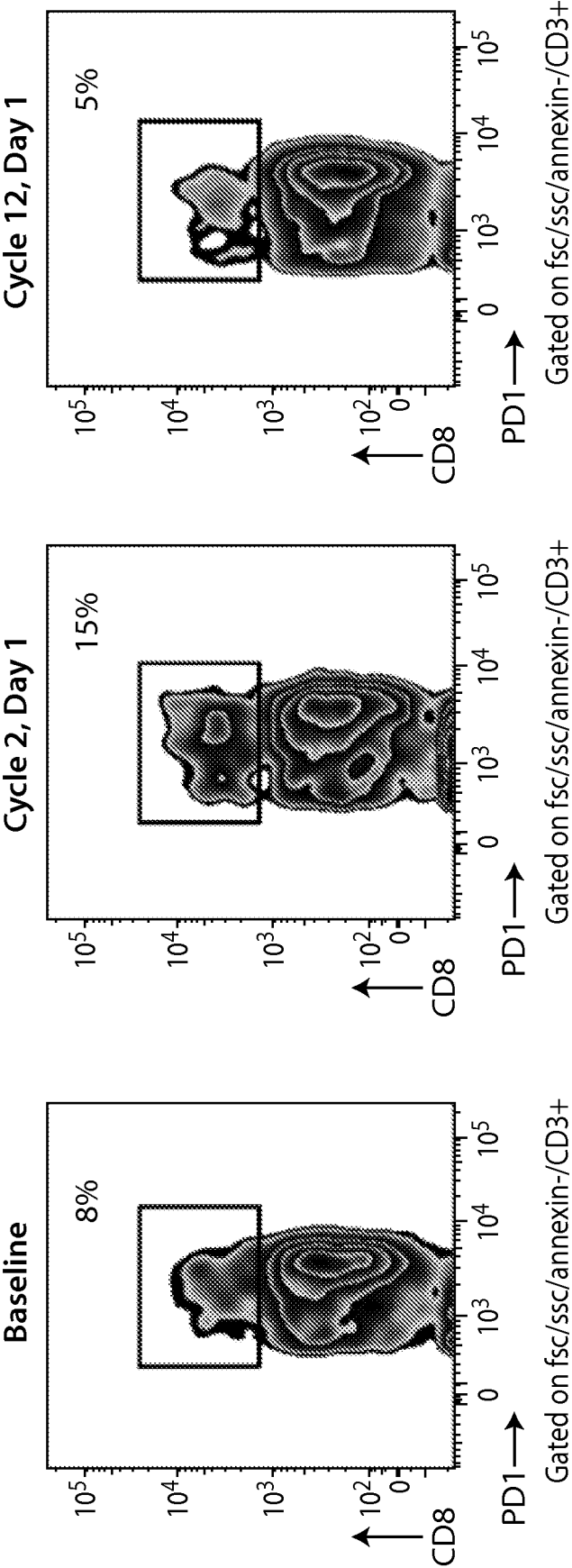
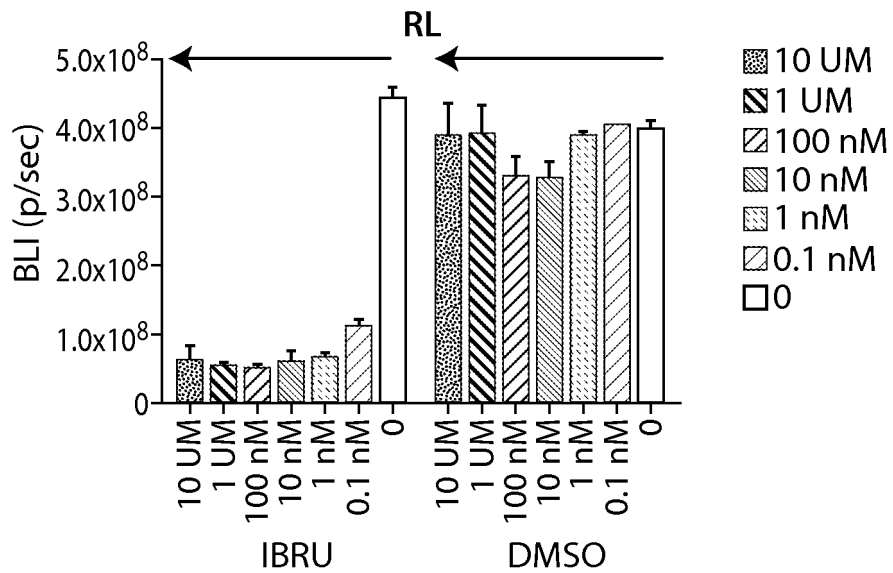


FIG. 30A

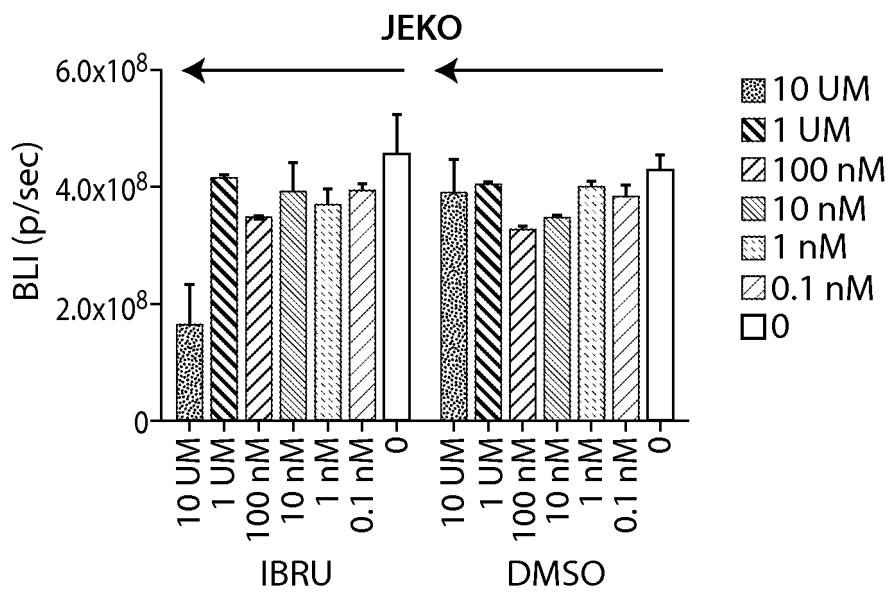
FIG. 30B

FIG. 30C



Ibrutinib-sensitive

FIG. 31A



Ibrutinib-resistant

FIG. 31B

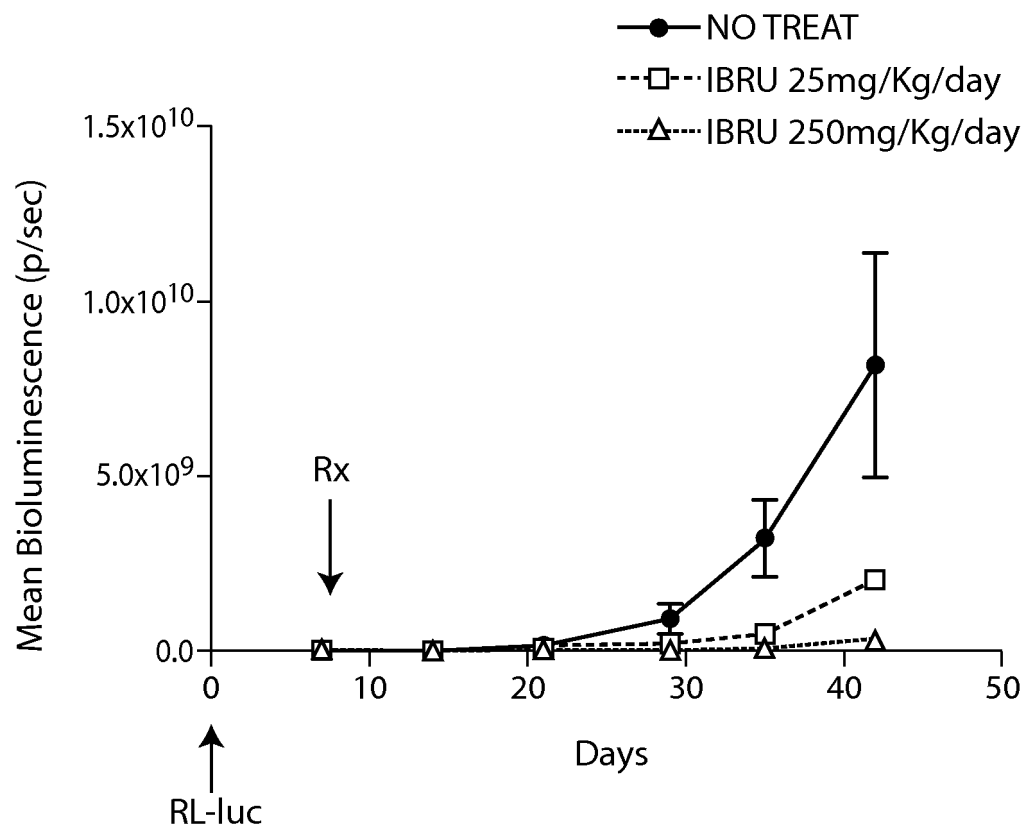


FIG. 32

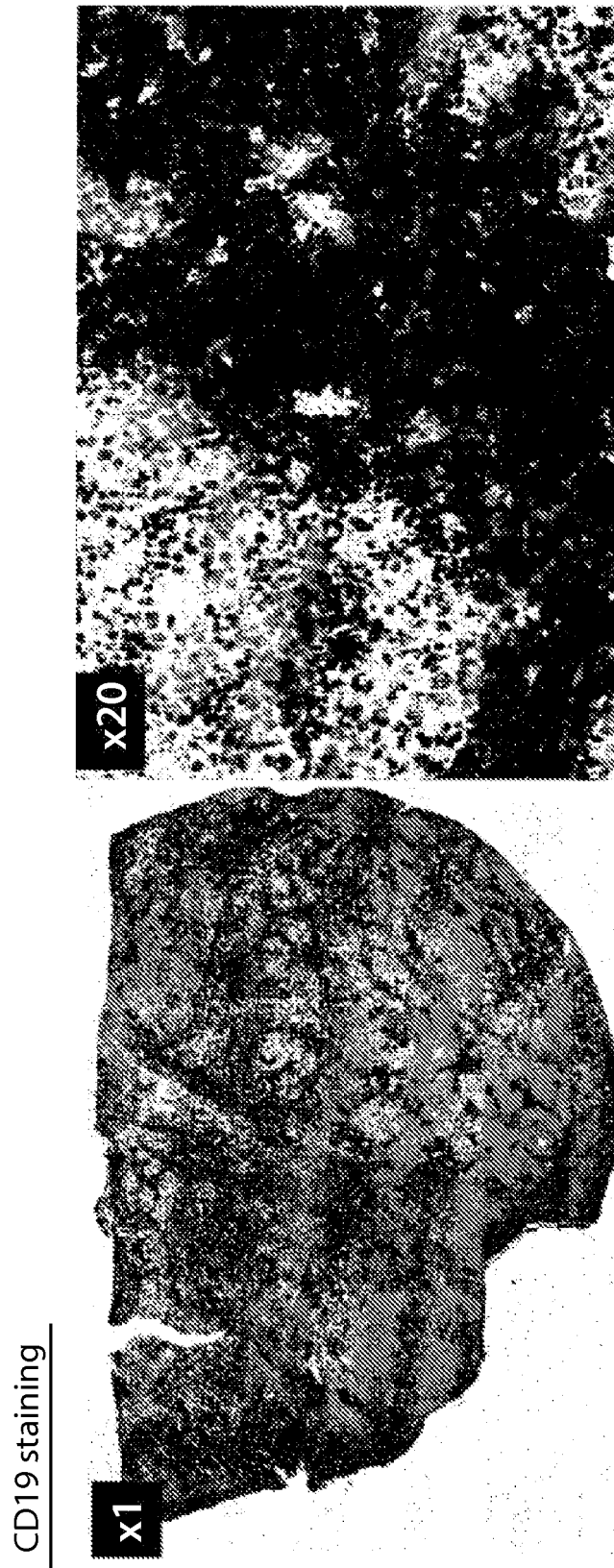


Fig. 33

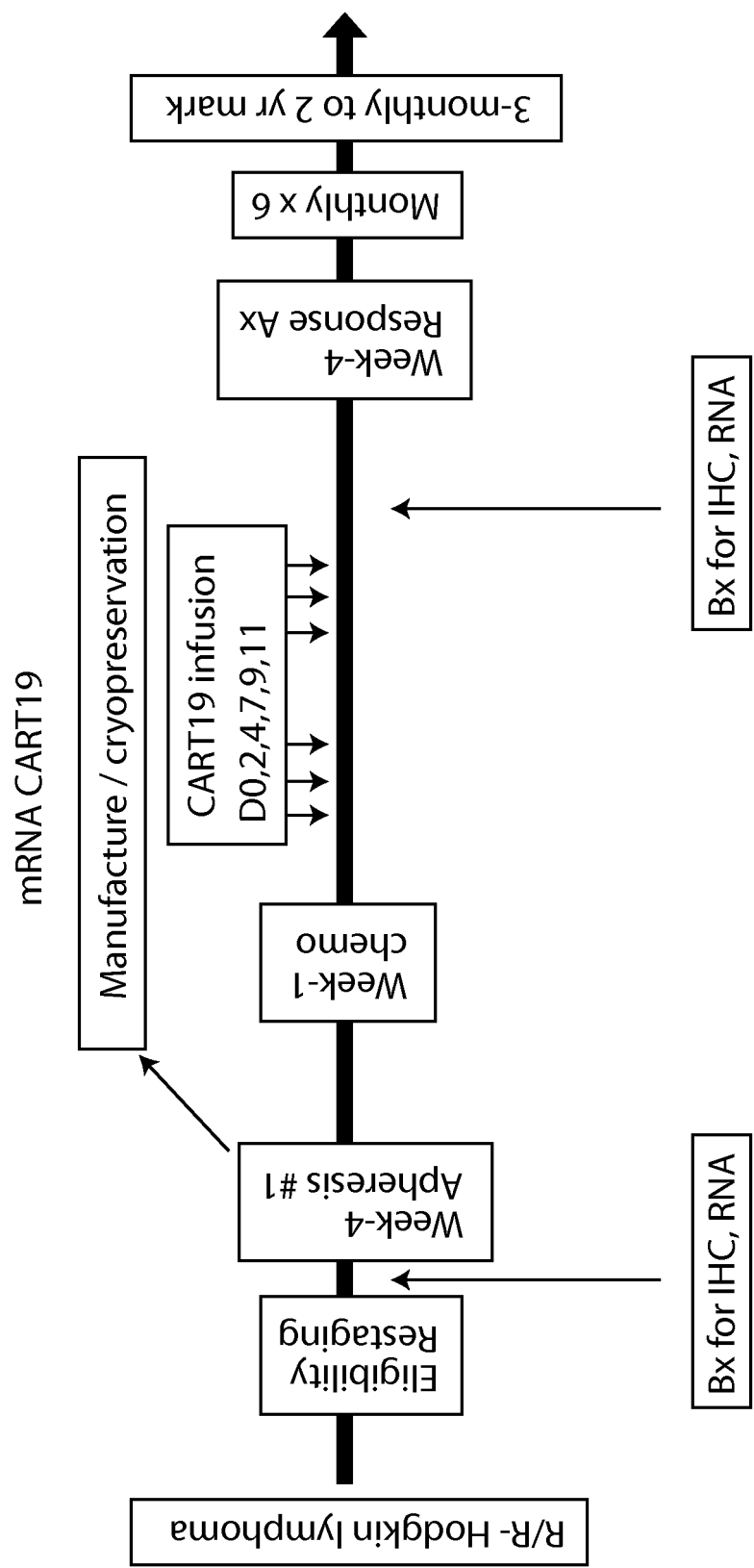


FIG. 34

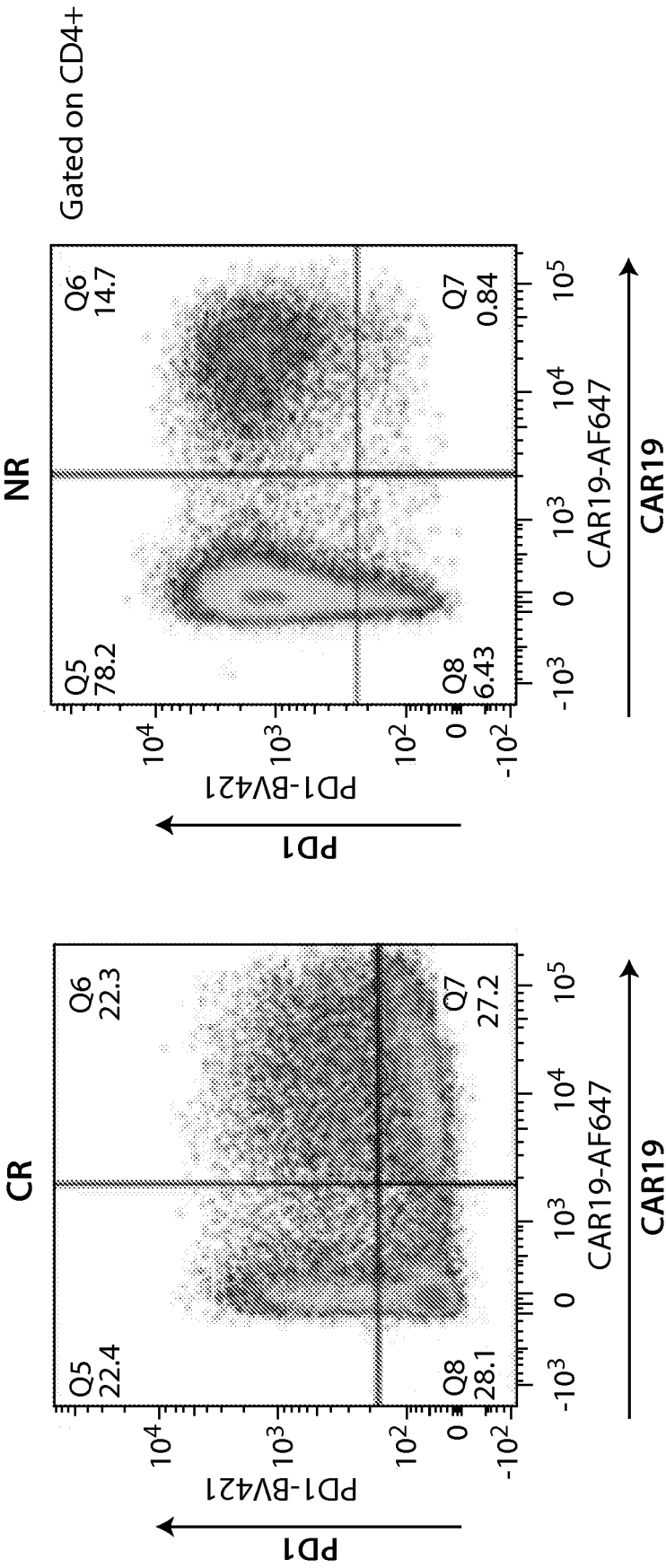


FIG. 35B

FIG. 35A

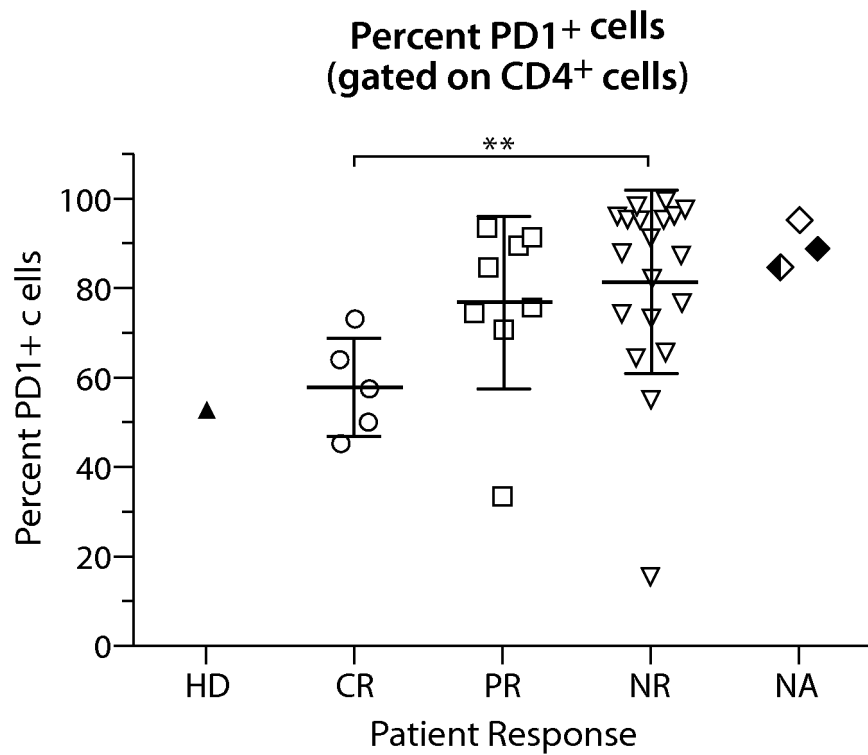


FIG. 35C

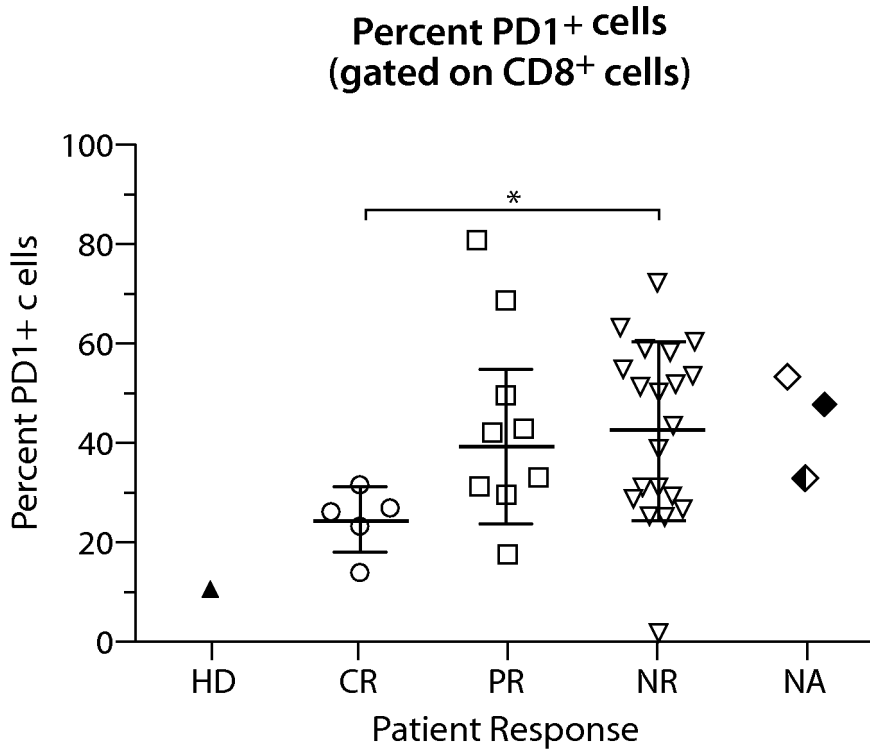


FIG. 35D

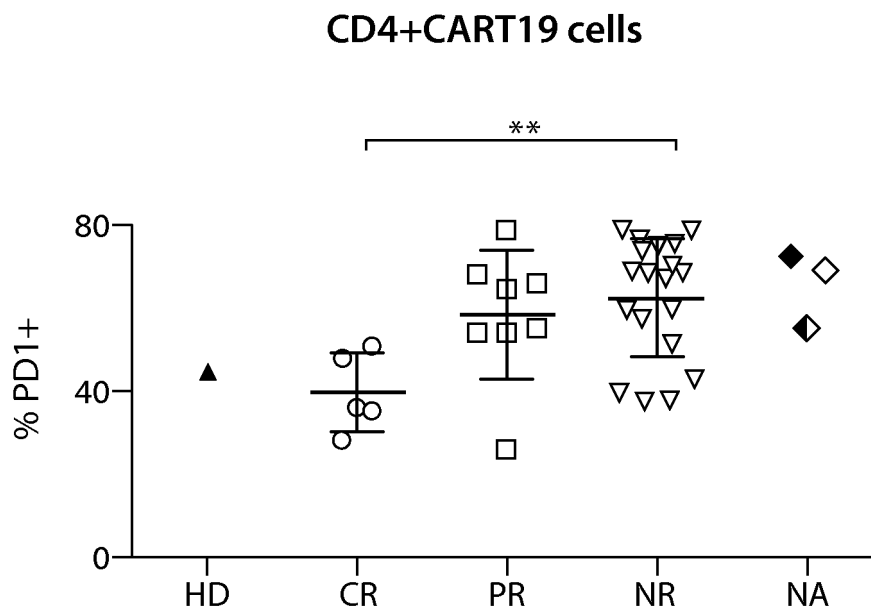


FIG. 36A

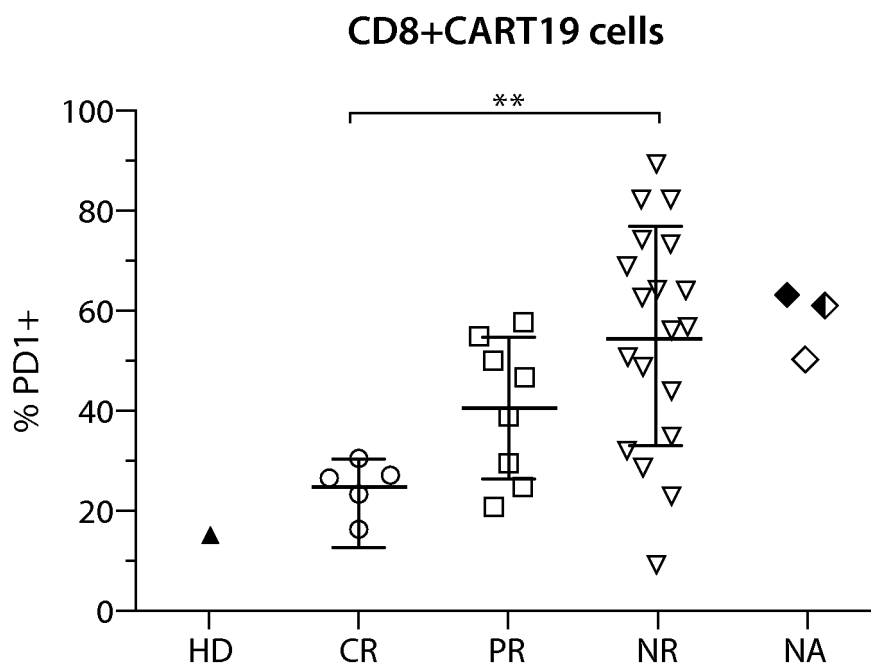
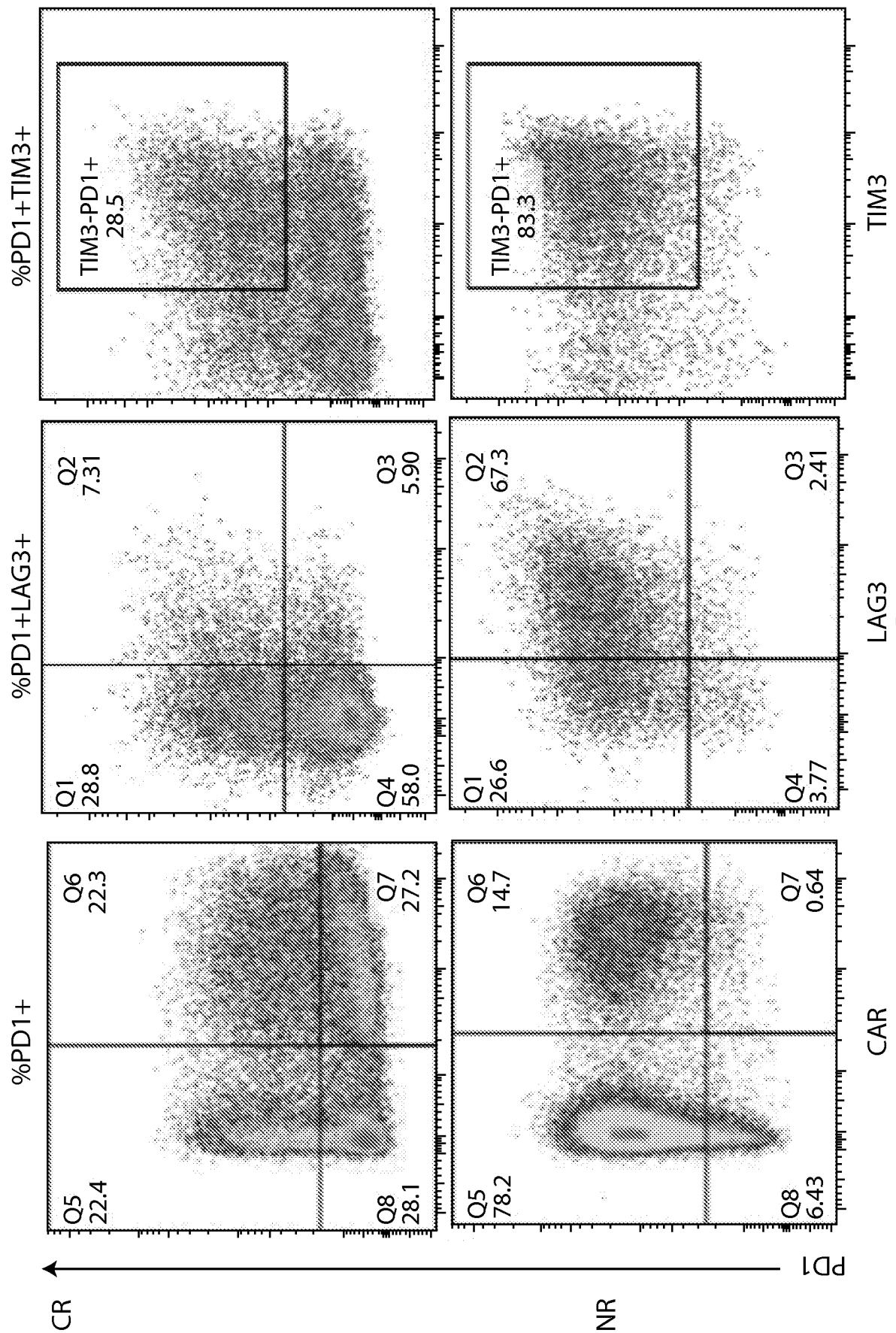


FIG. 36B



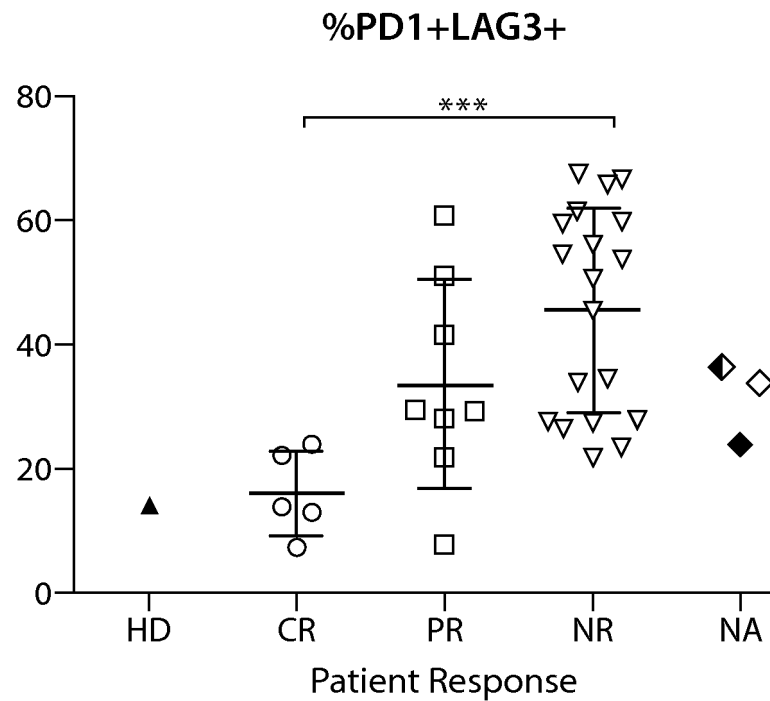


FIG. 38A

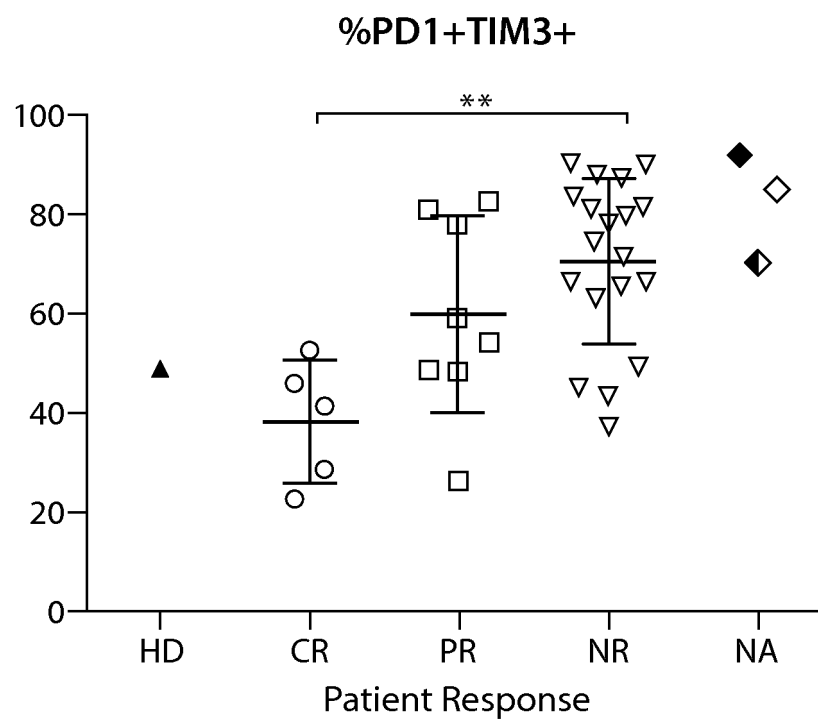


FIG. 38B

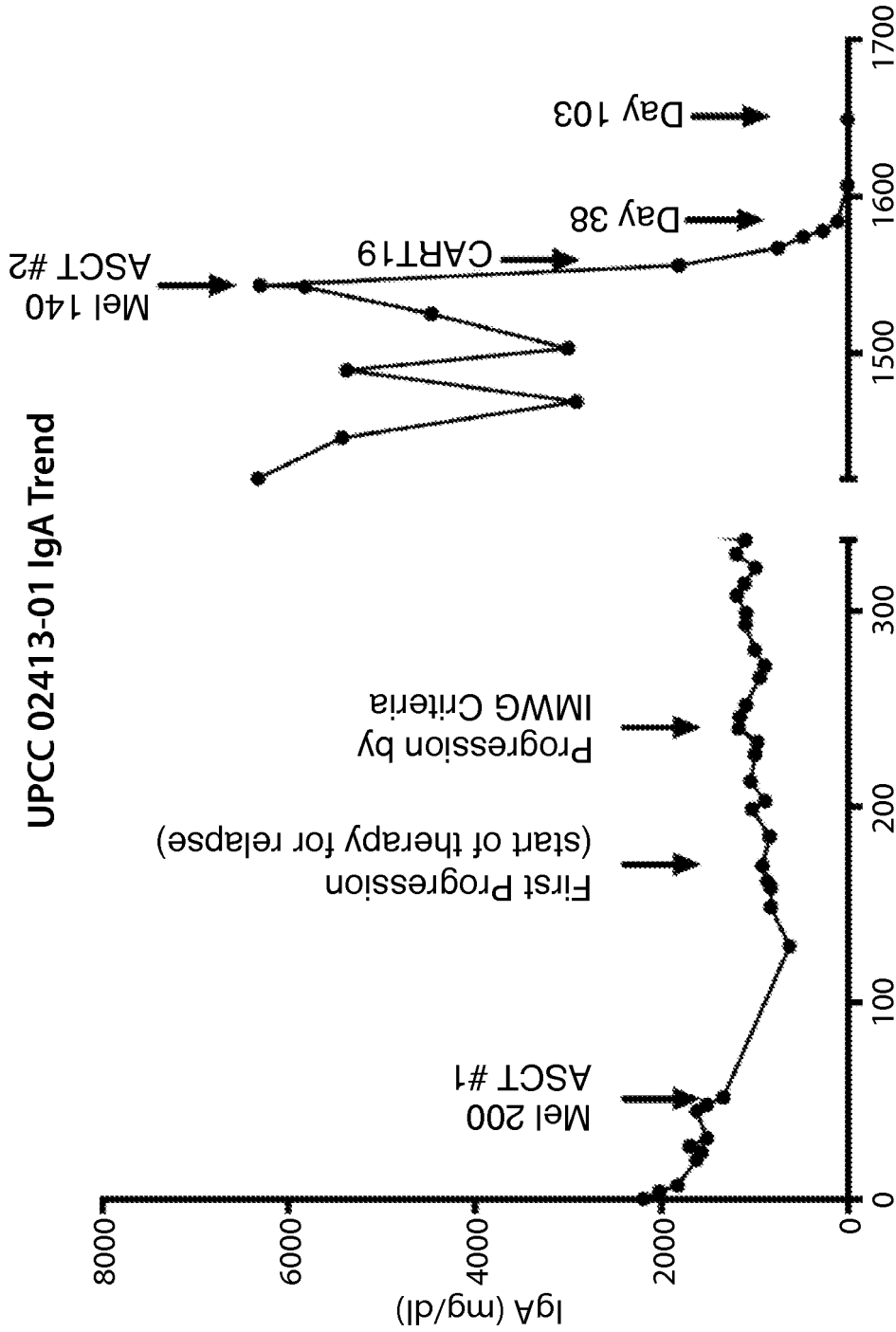


FIG. 39

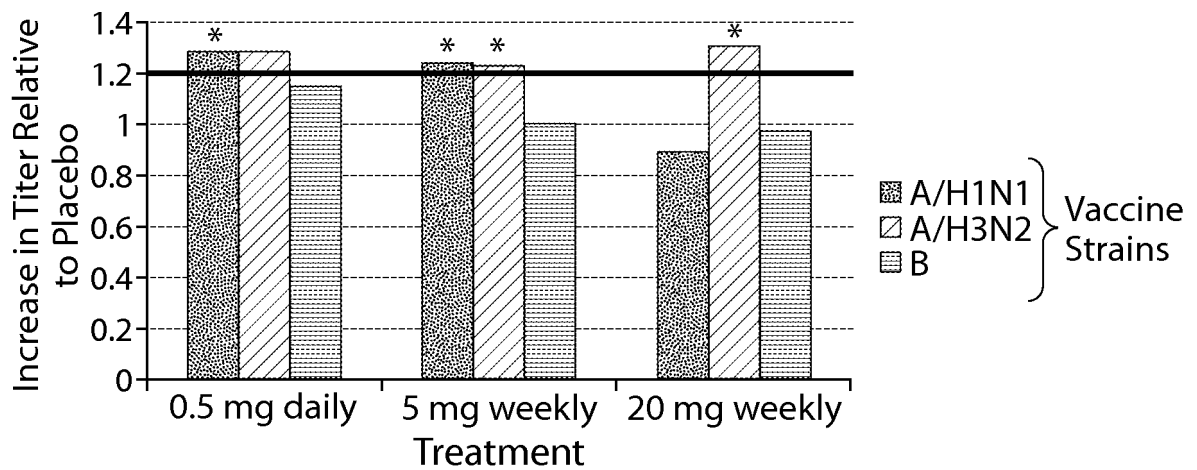


FIG. 40A

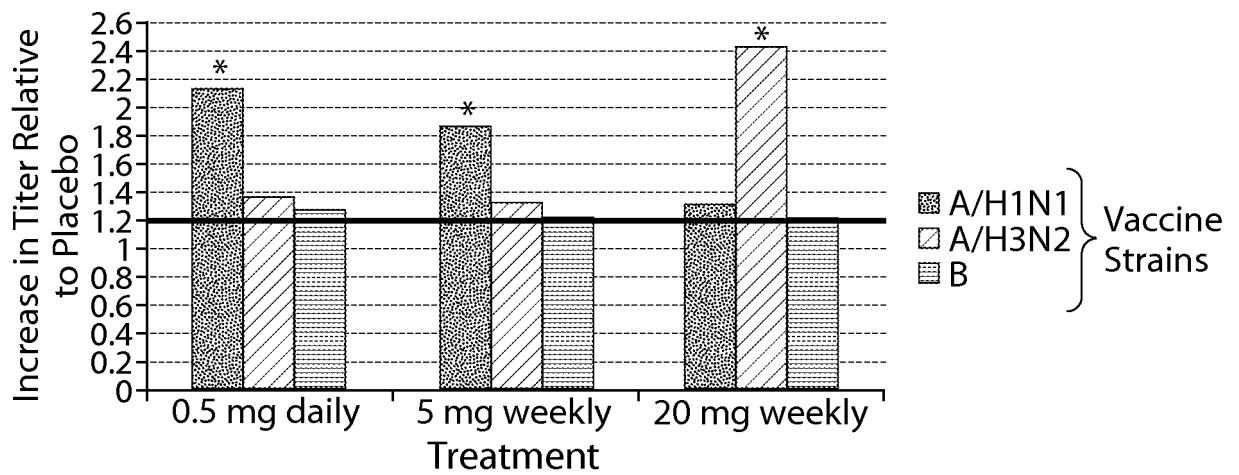


FIG. 40B

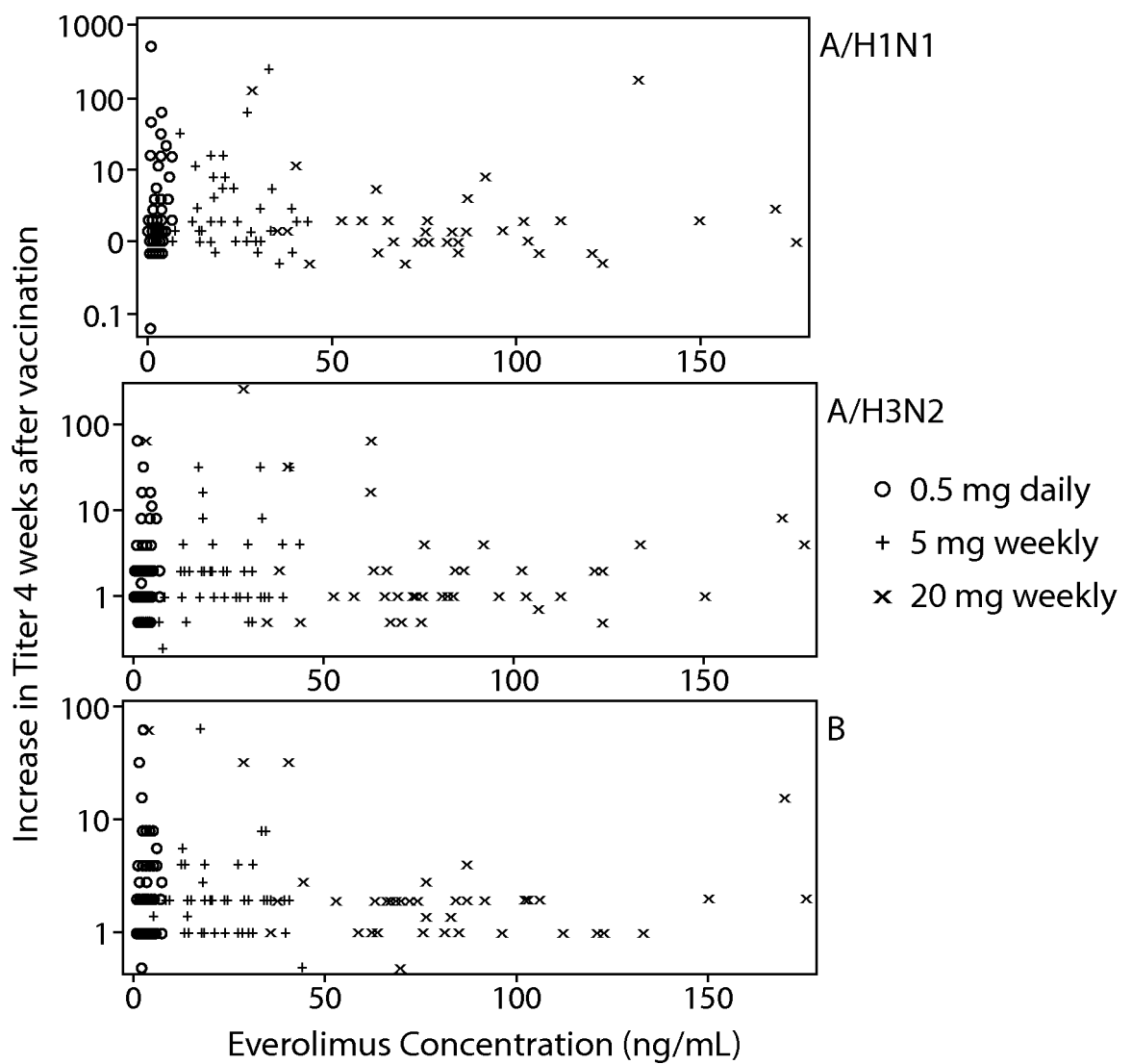


FIG. 41

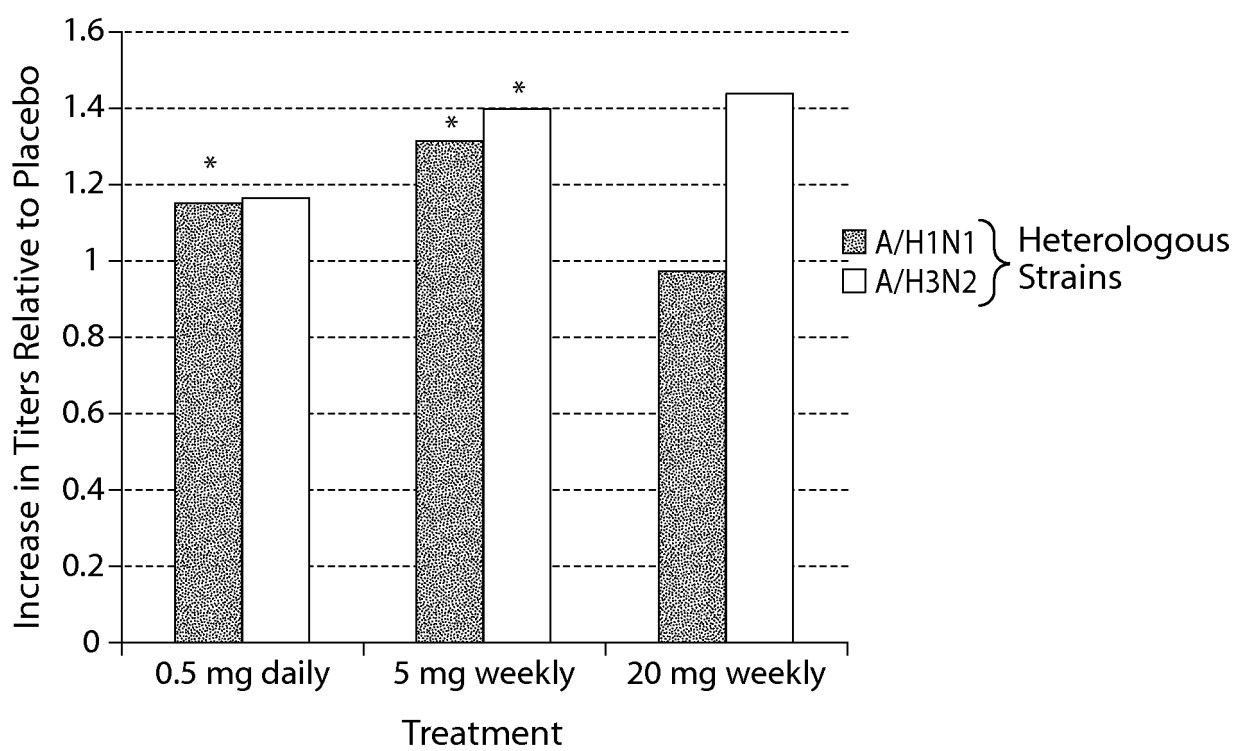


FIG. 42

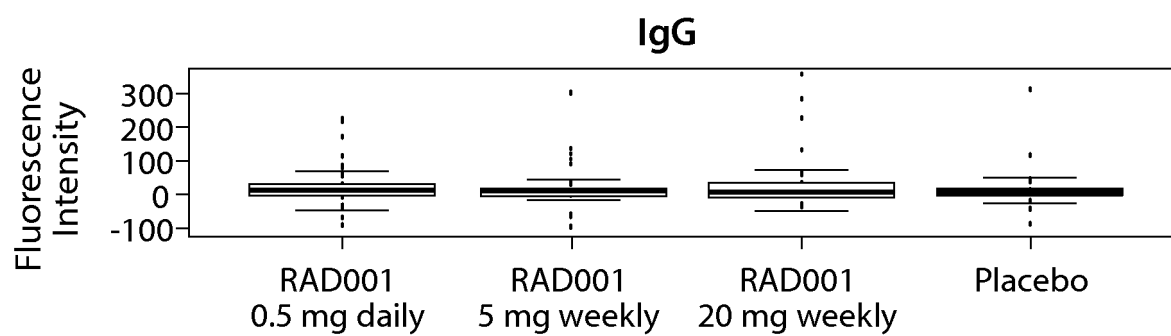


FIG. 43A

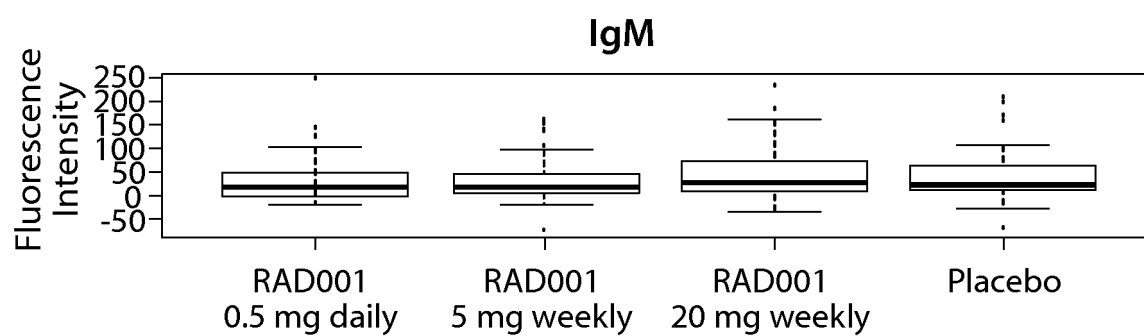


FIG. 43B

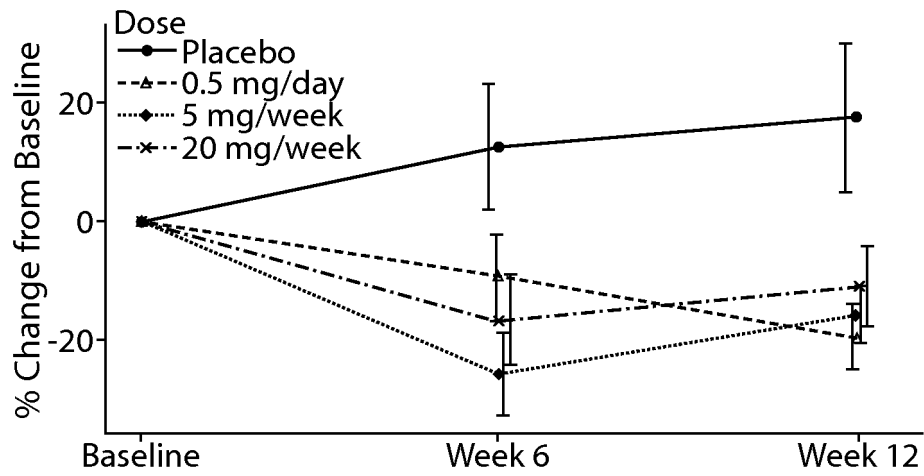


FIG. 44A

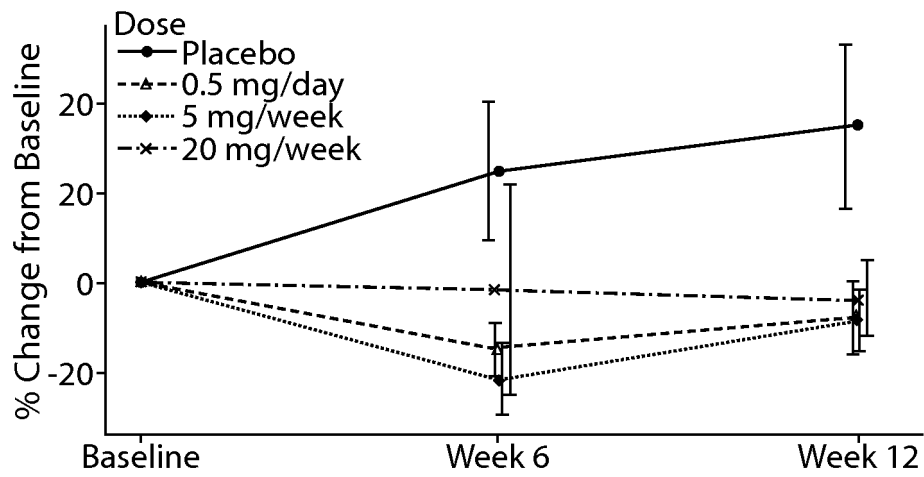


FIG. 44B

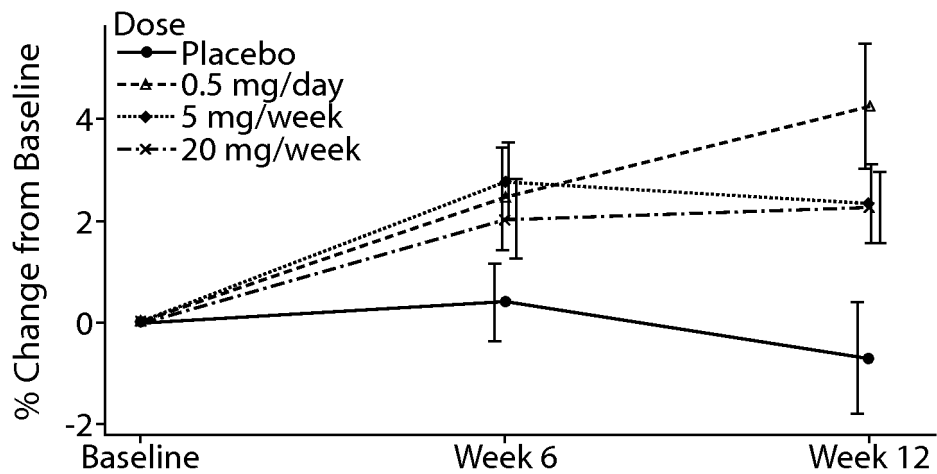


FIG. 44C

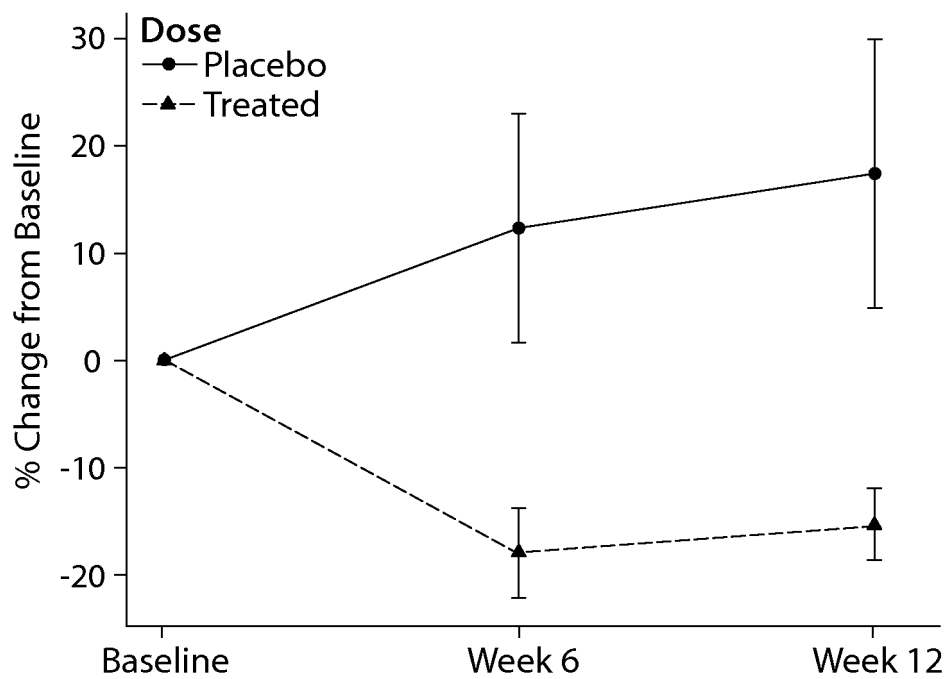


FIG. 45A

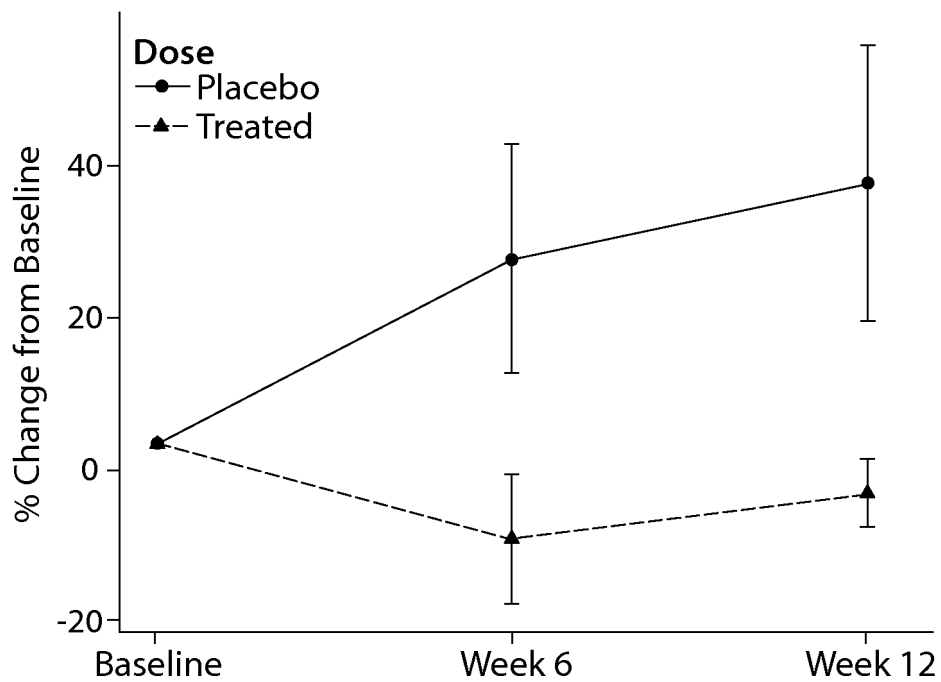
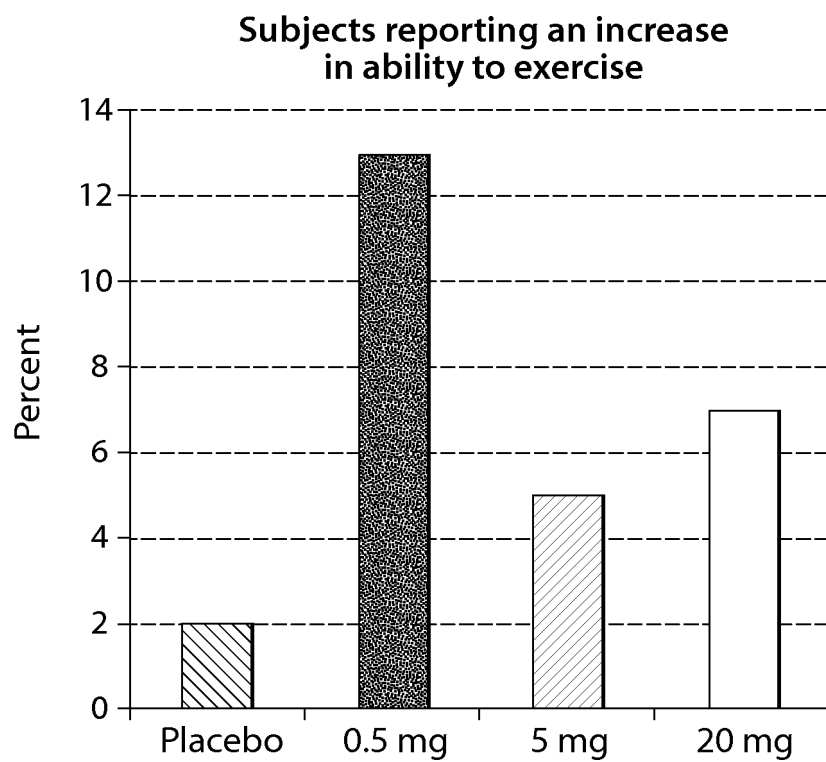
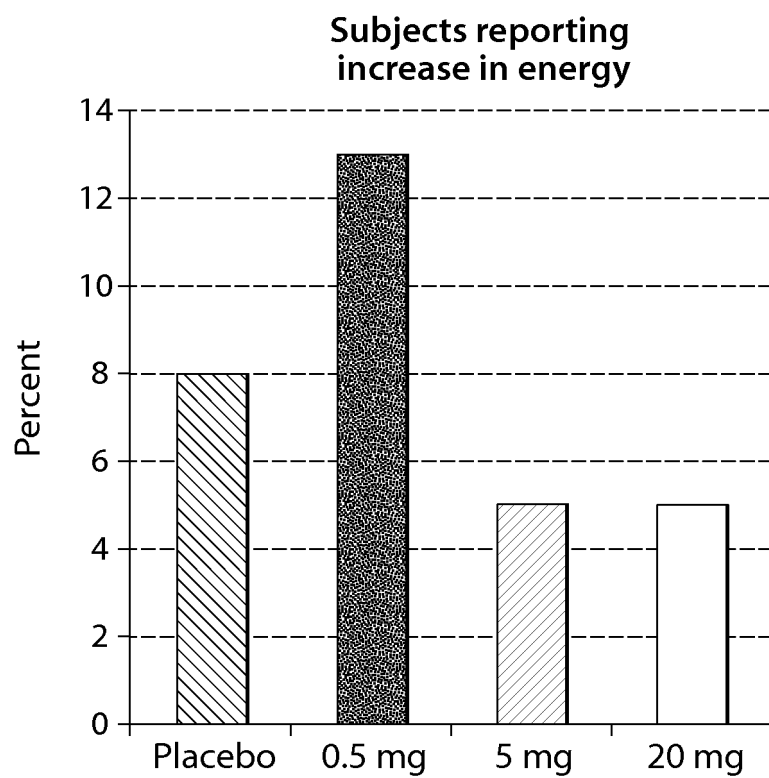


FIG. 45B

**FIG. 46**

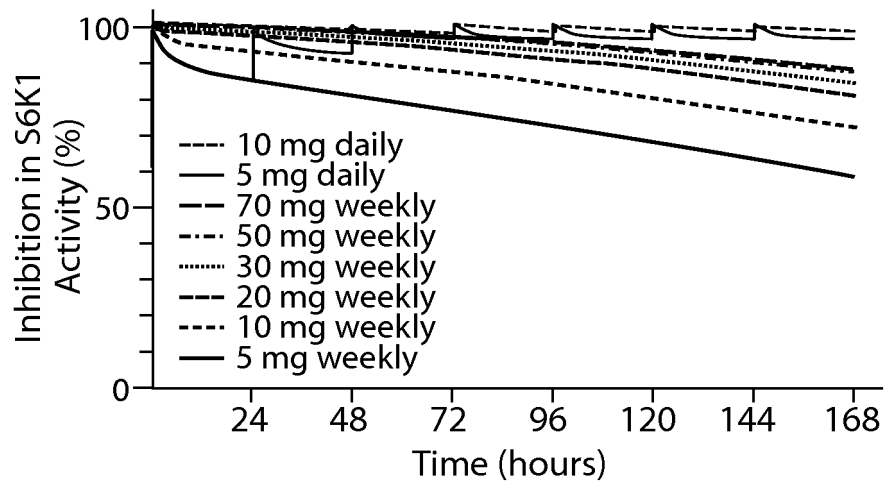


FIG. 47A

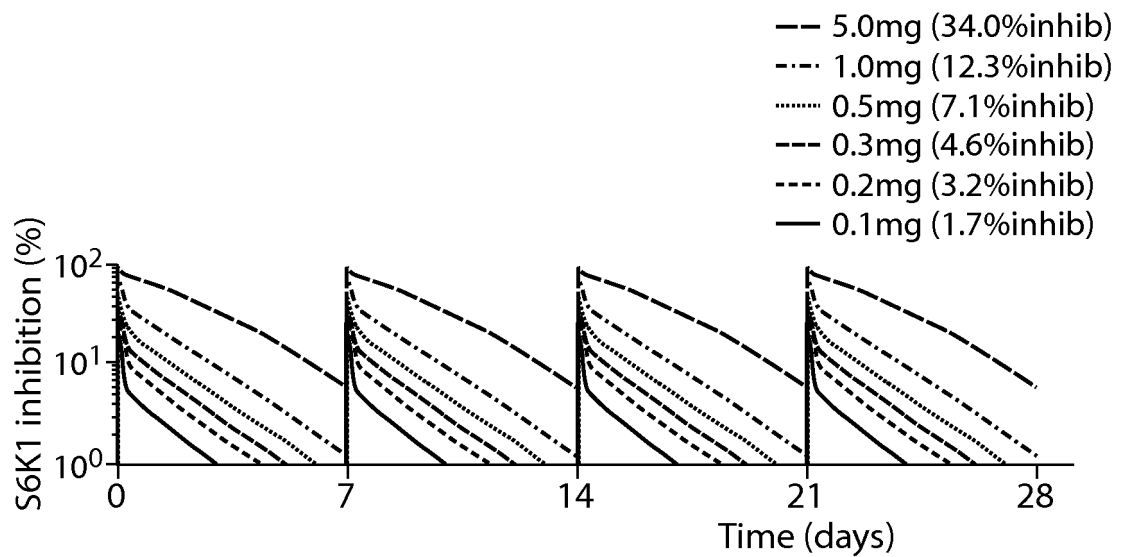


FIG. 47B

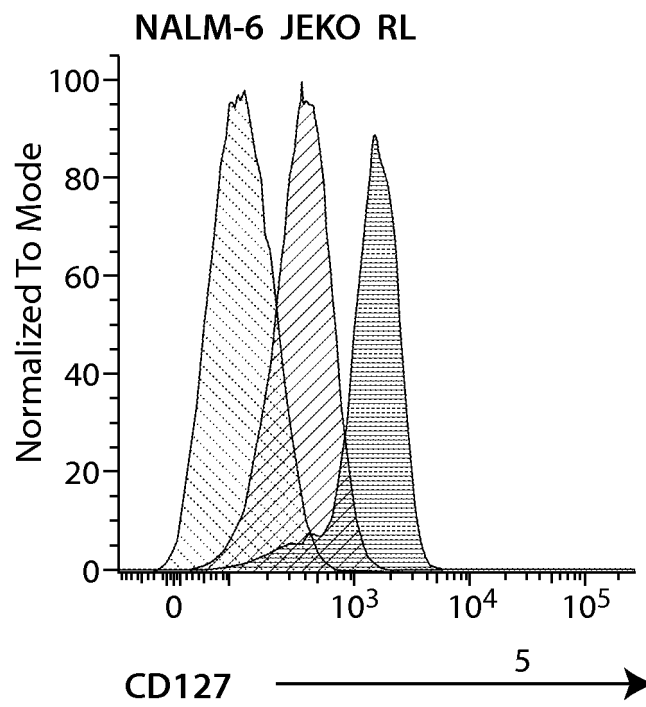


FIG. 48A

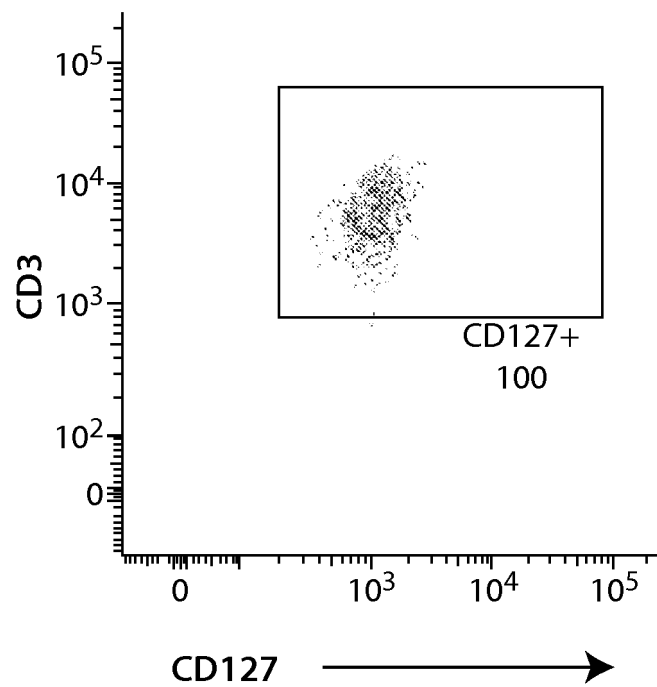


FIG. 48B

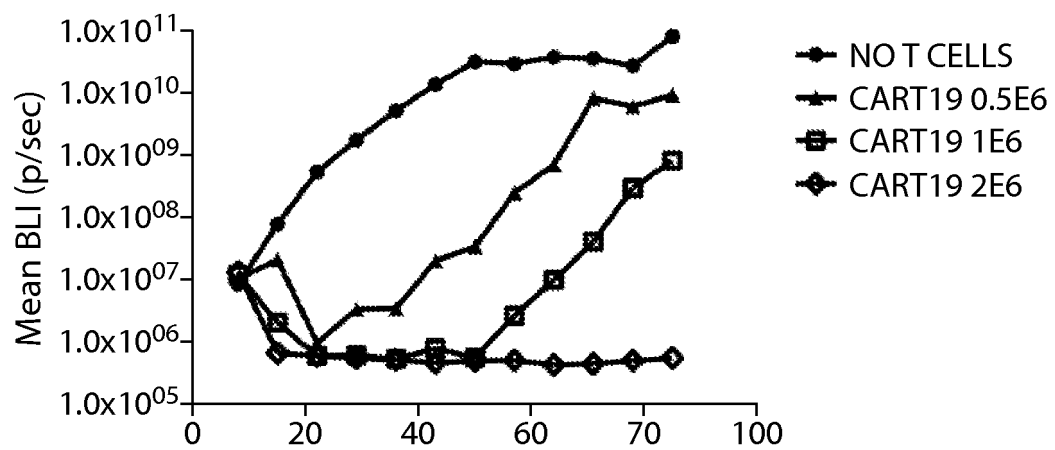


FIG. 49A

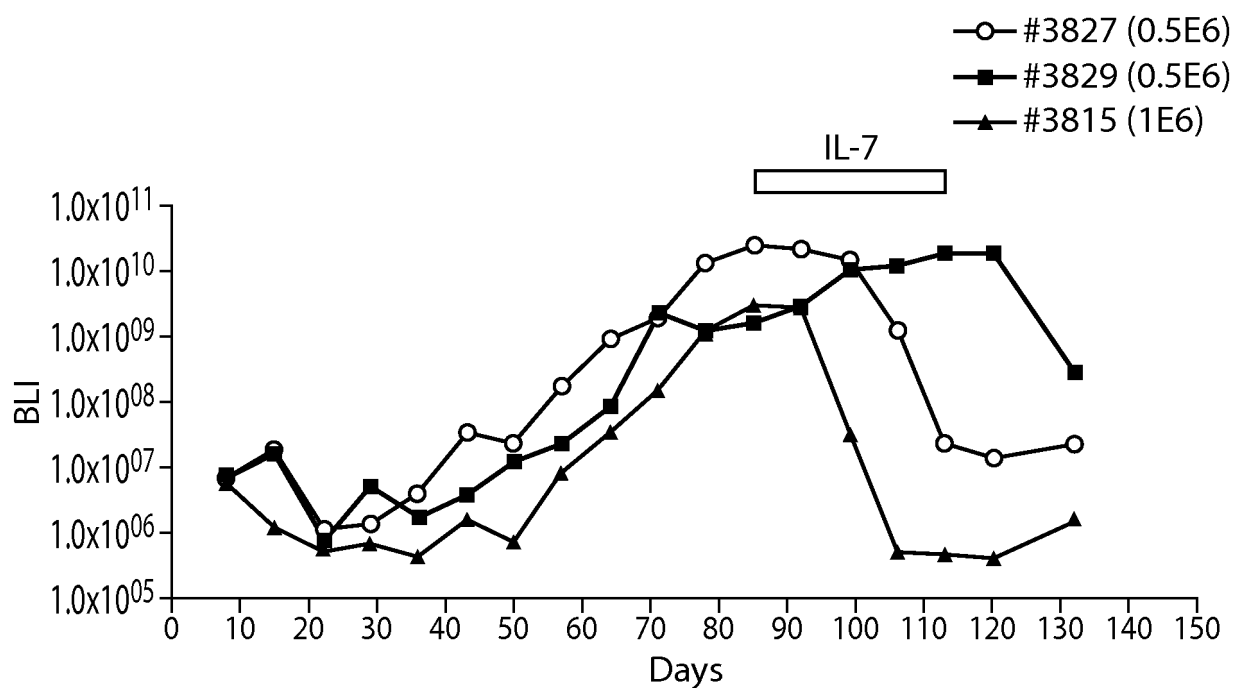


FIG. 49B

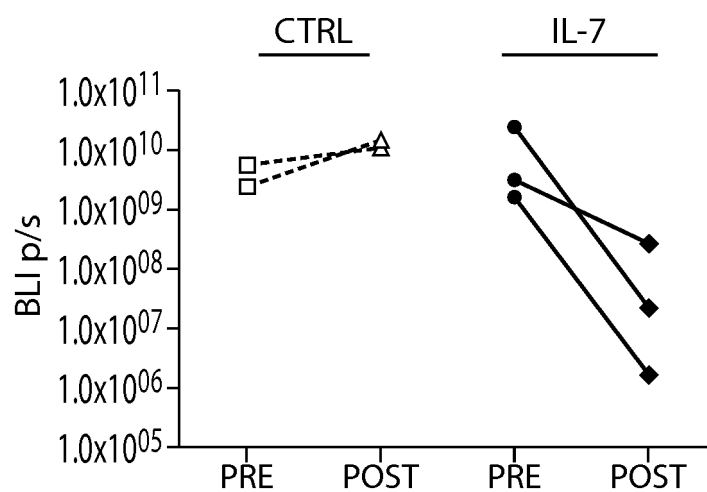


FIG. 49C

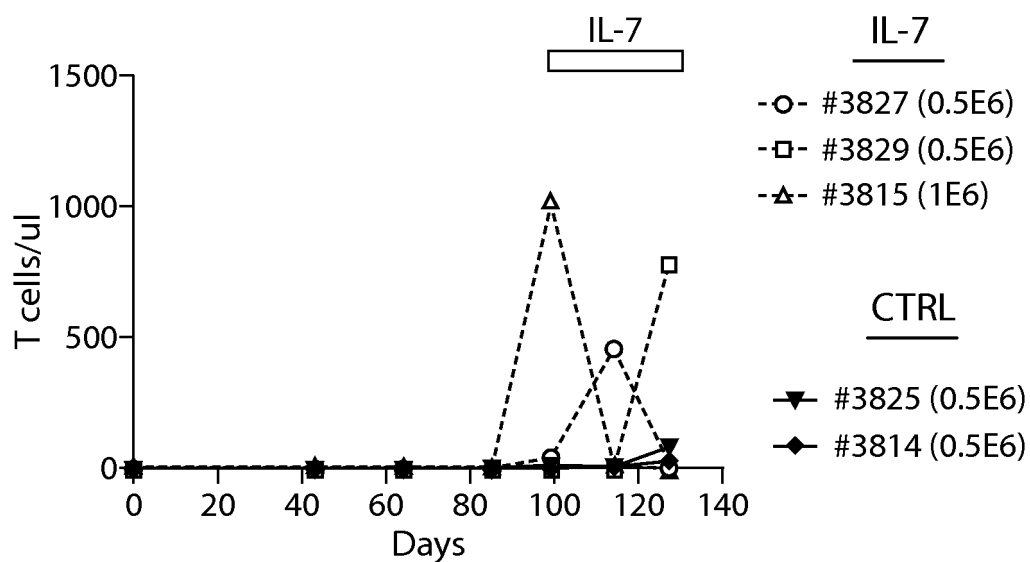


FIG. 50A

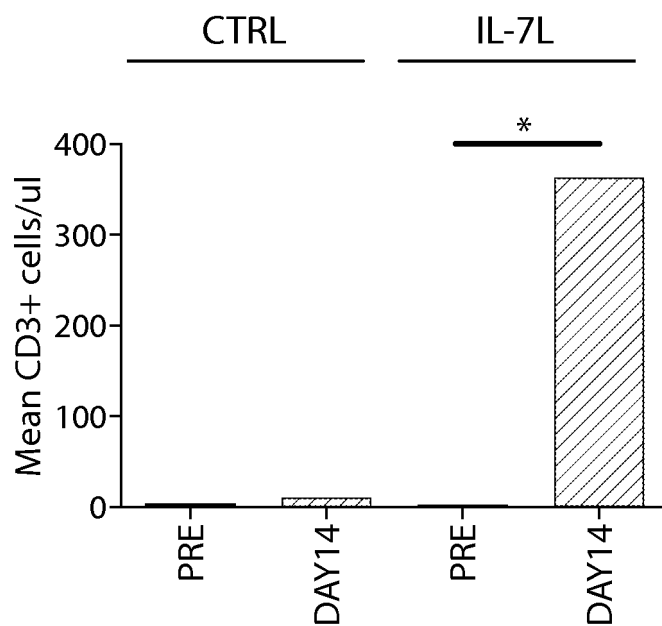


FIG. 50B

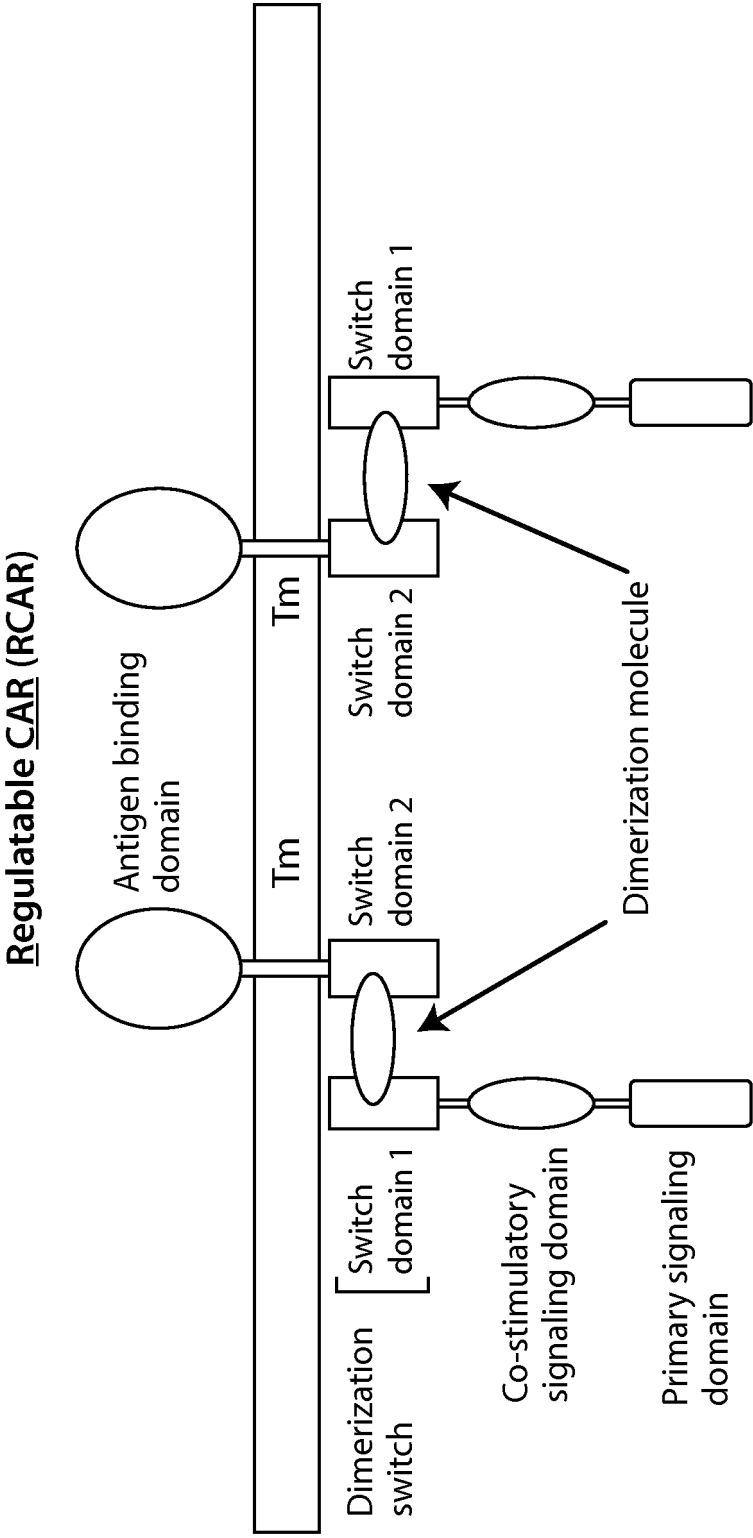


Fig. 51

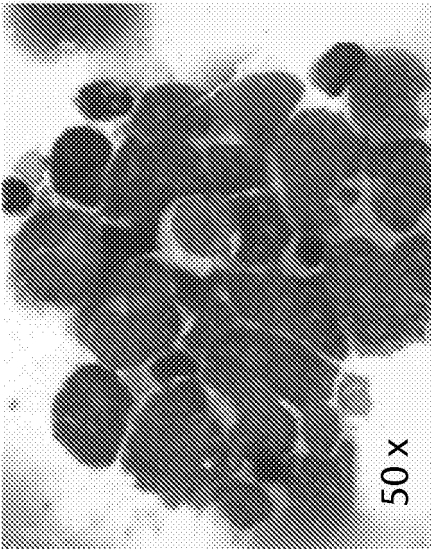


FIG. 52A

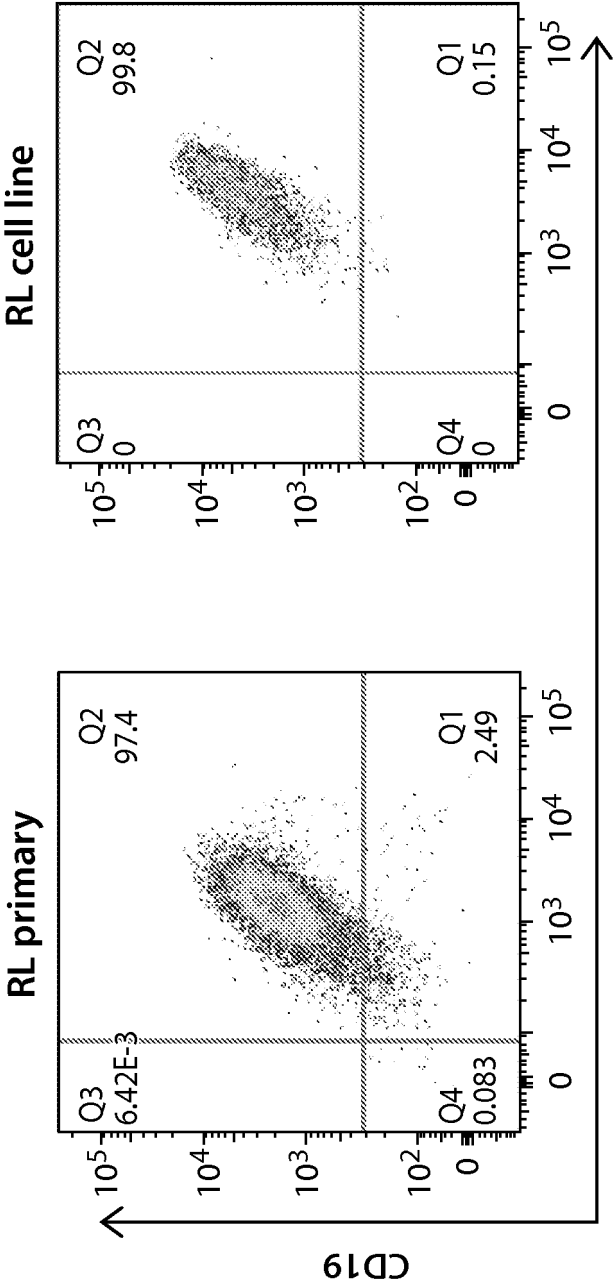


FIG. 52B

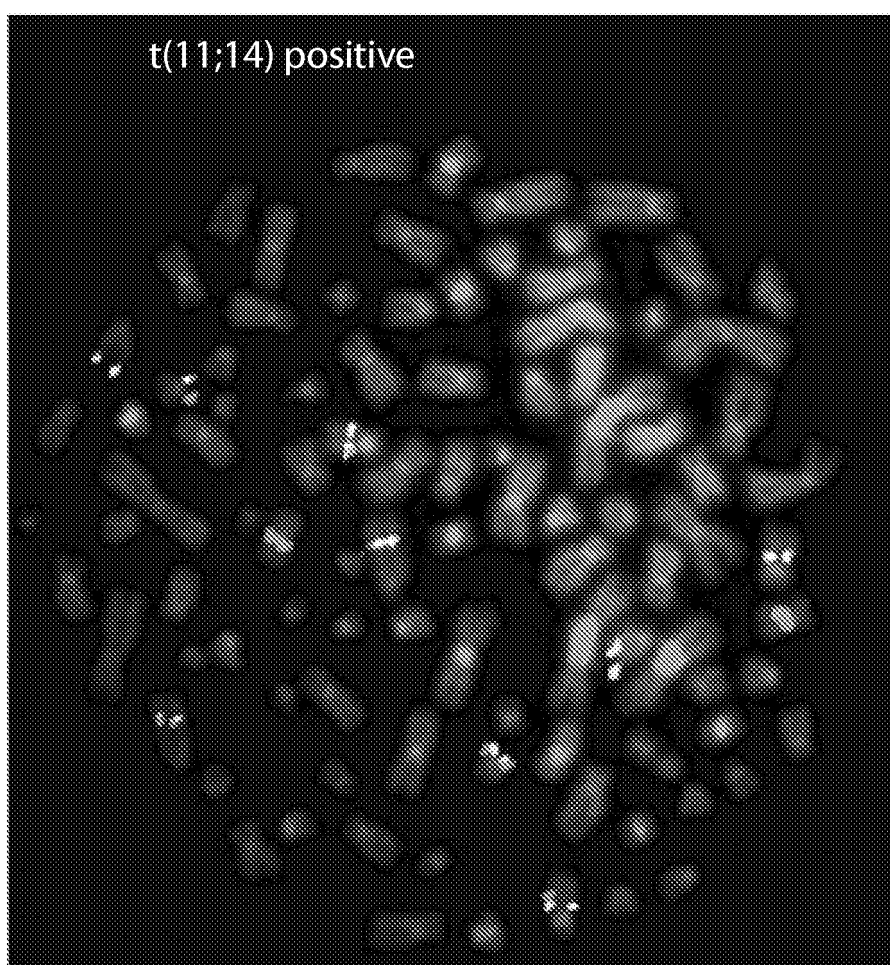


FIG. 52C

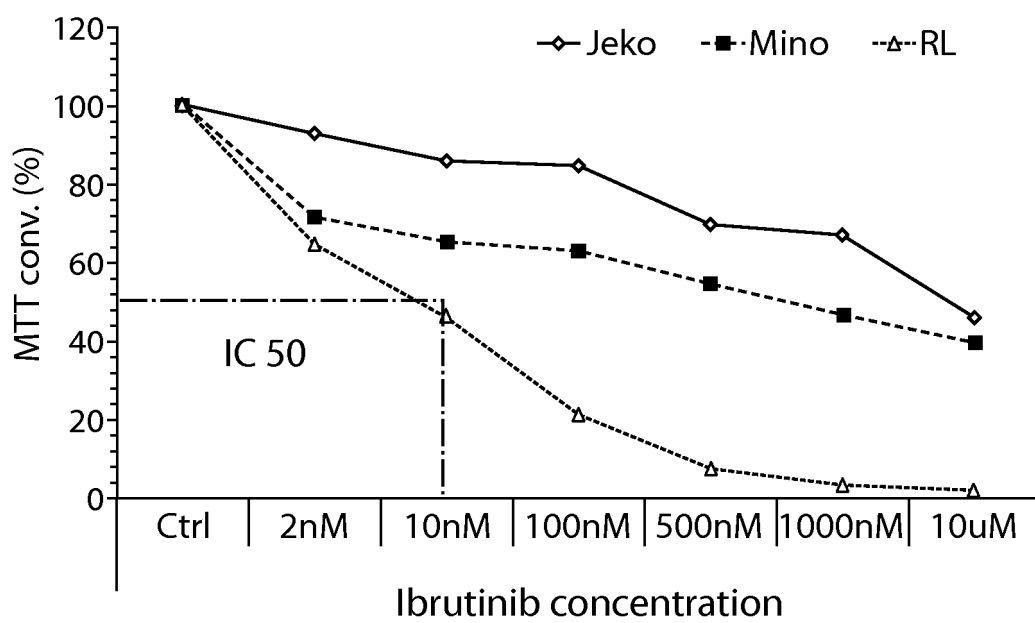


FIG. 52D

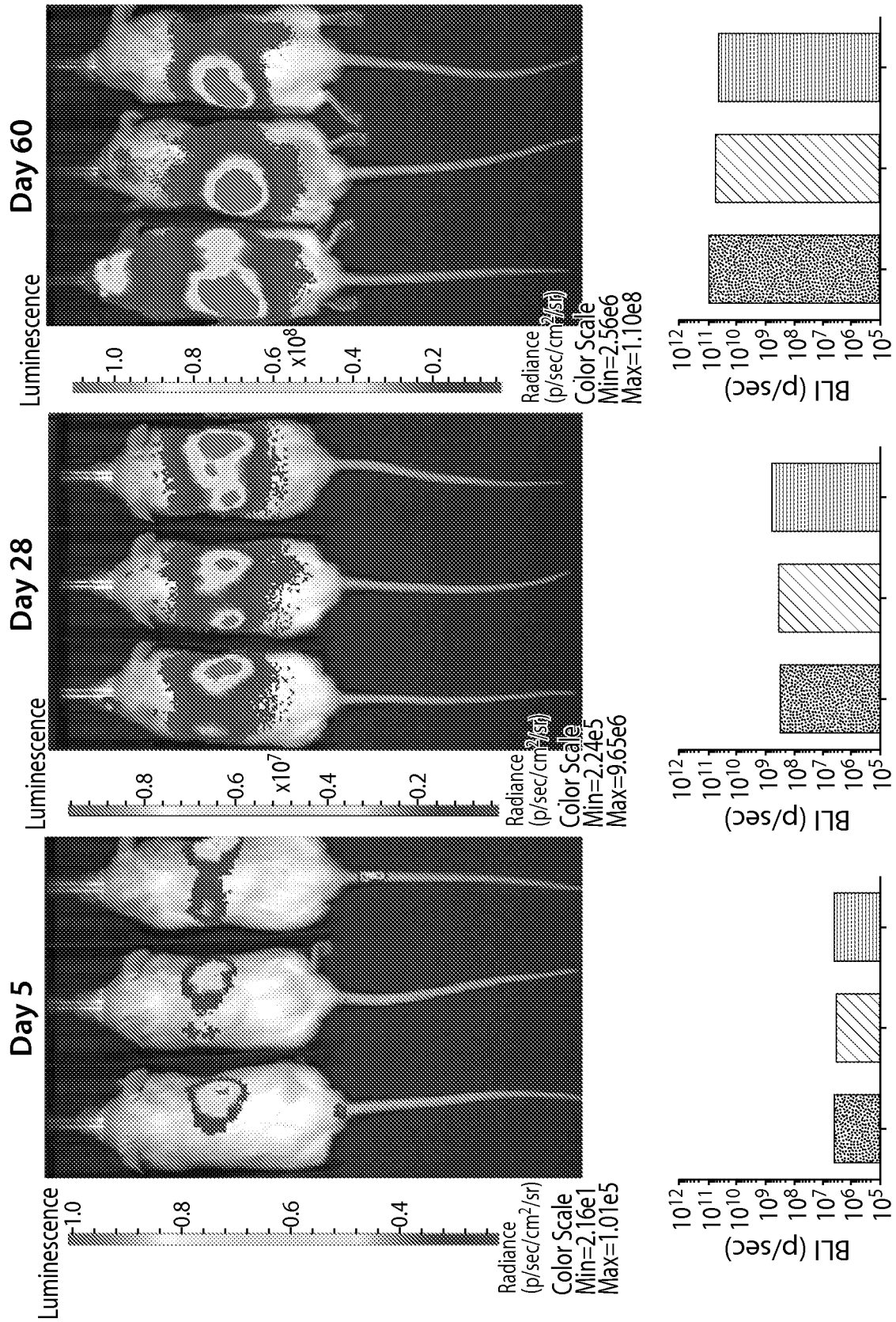


FIG. 52E

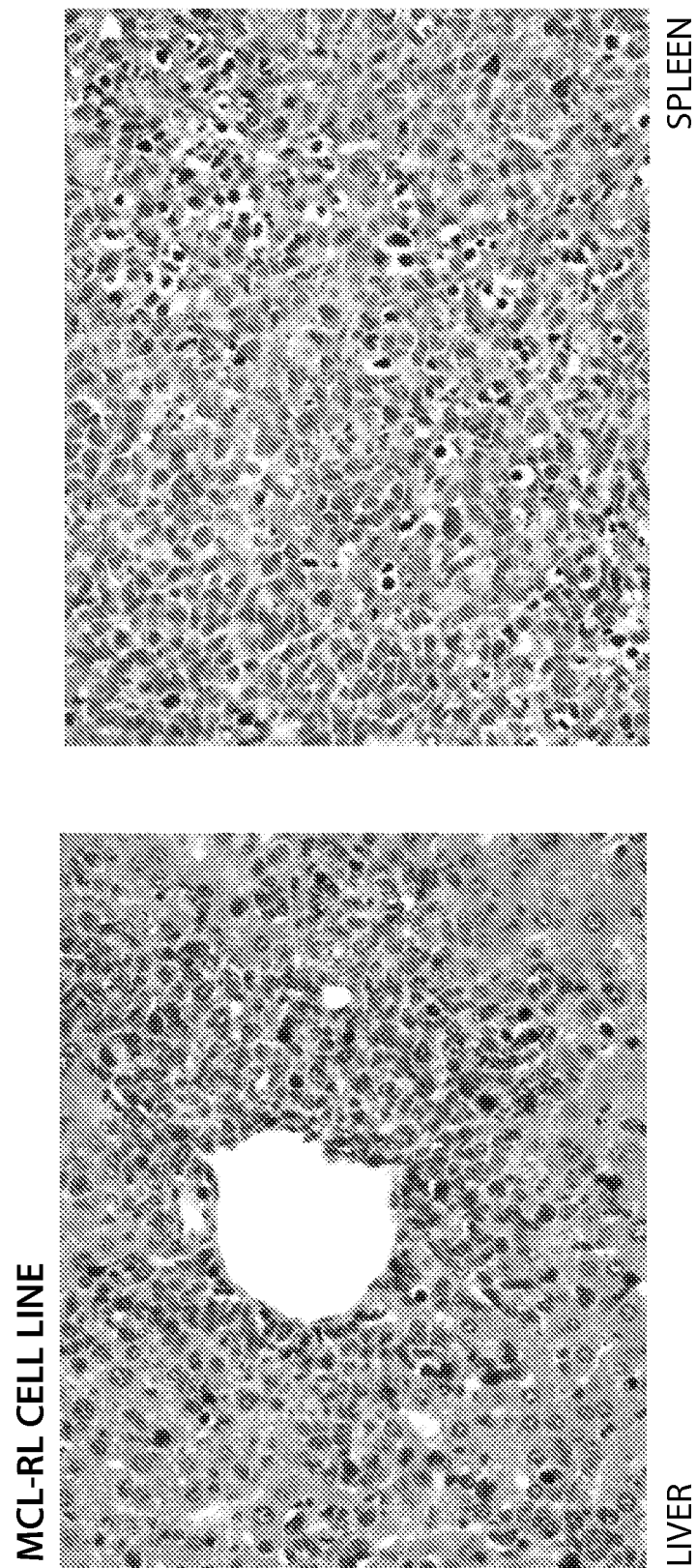


FIG. 52F

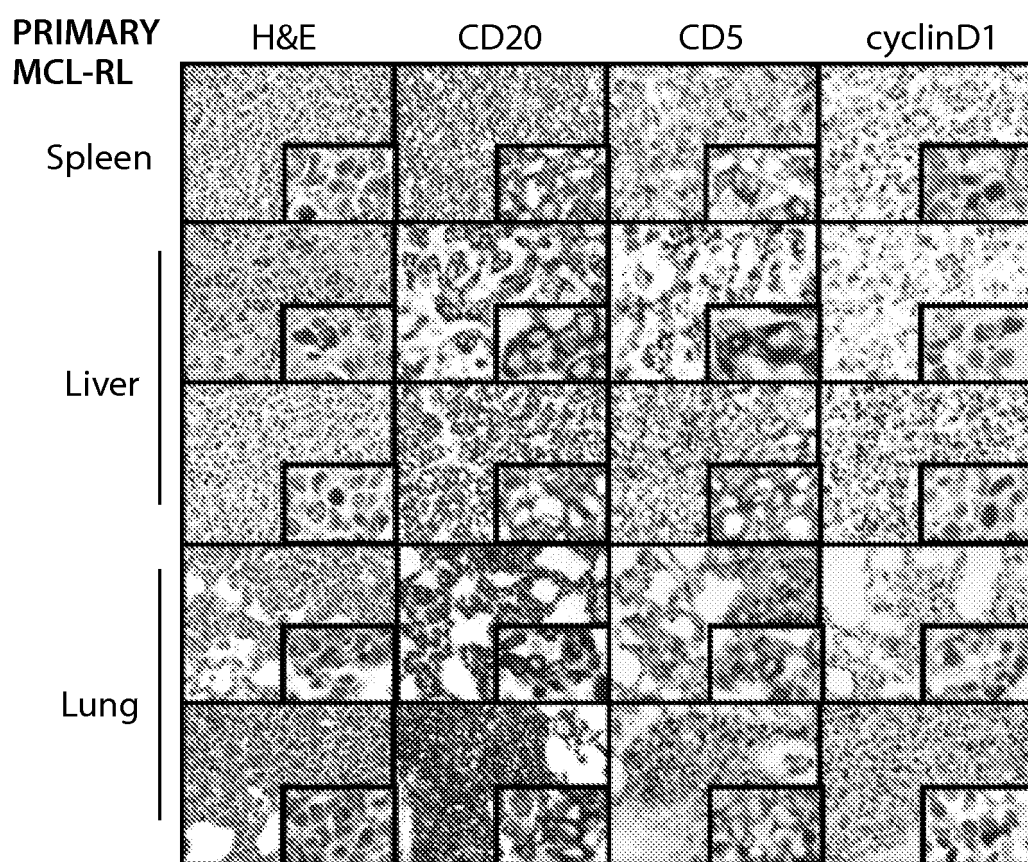


FIG. 52G

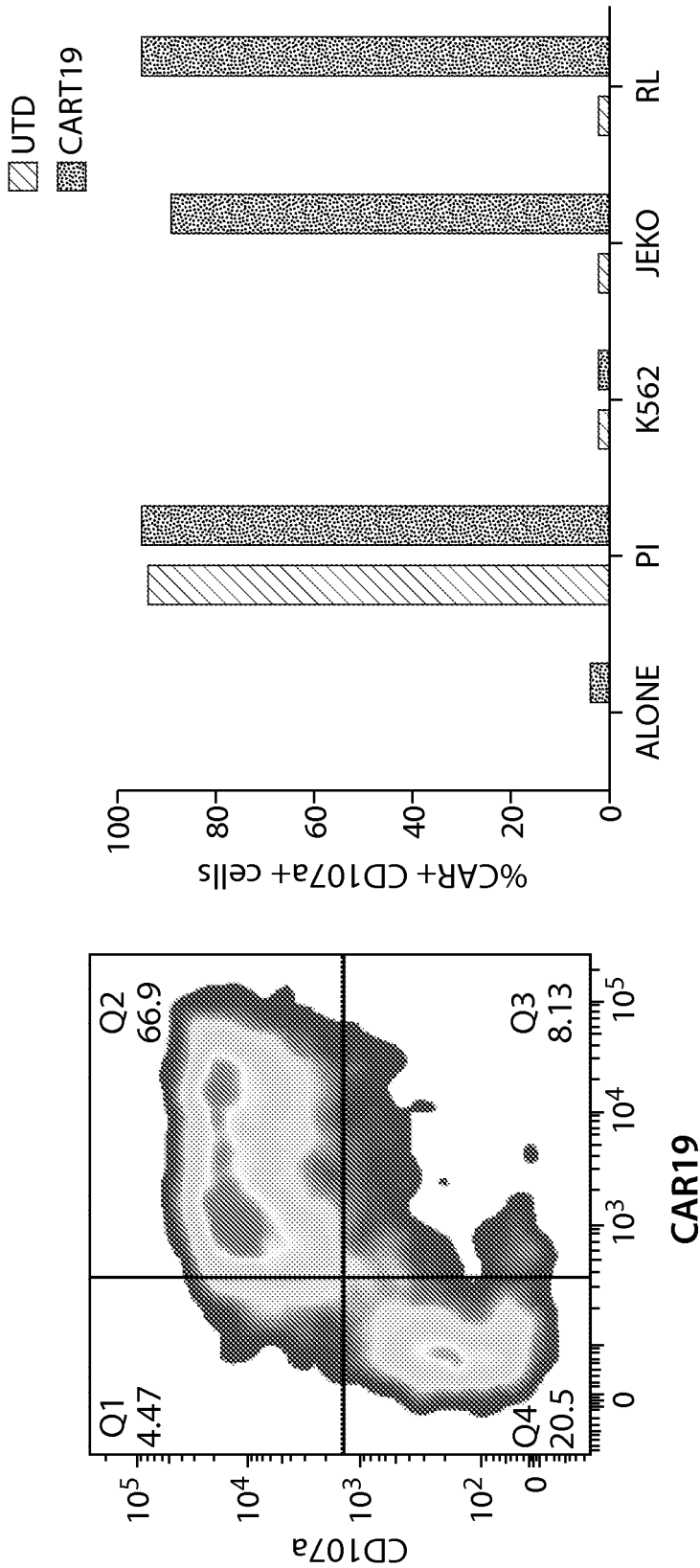


FIG. 53A

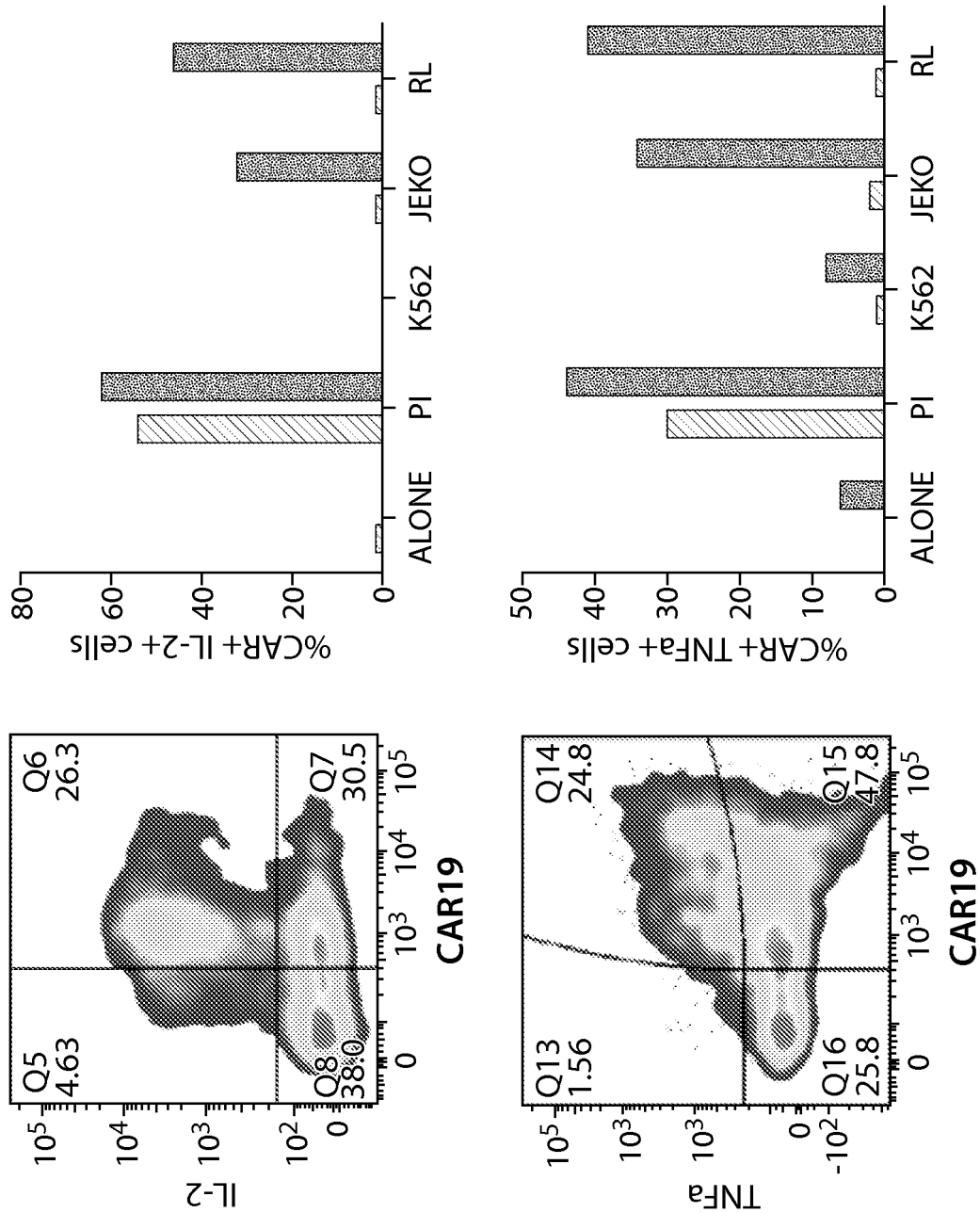


FIG. 53B

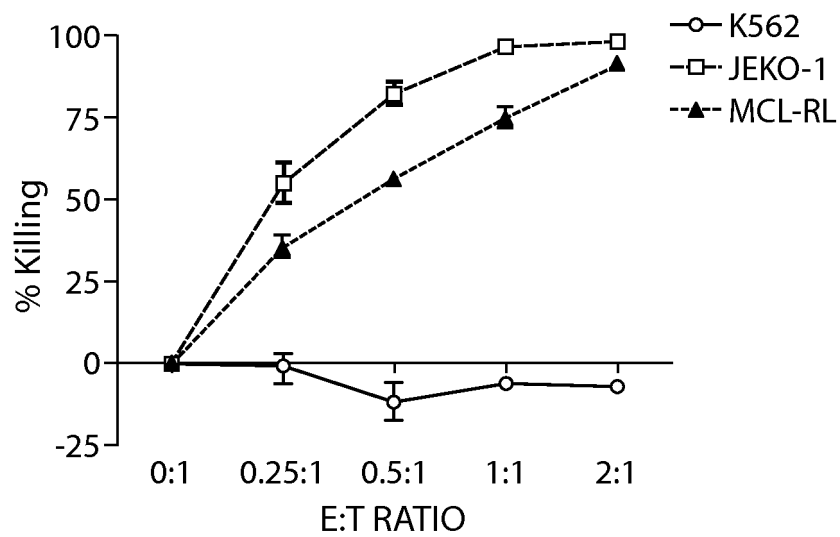


FIG. 53C

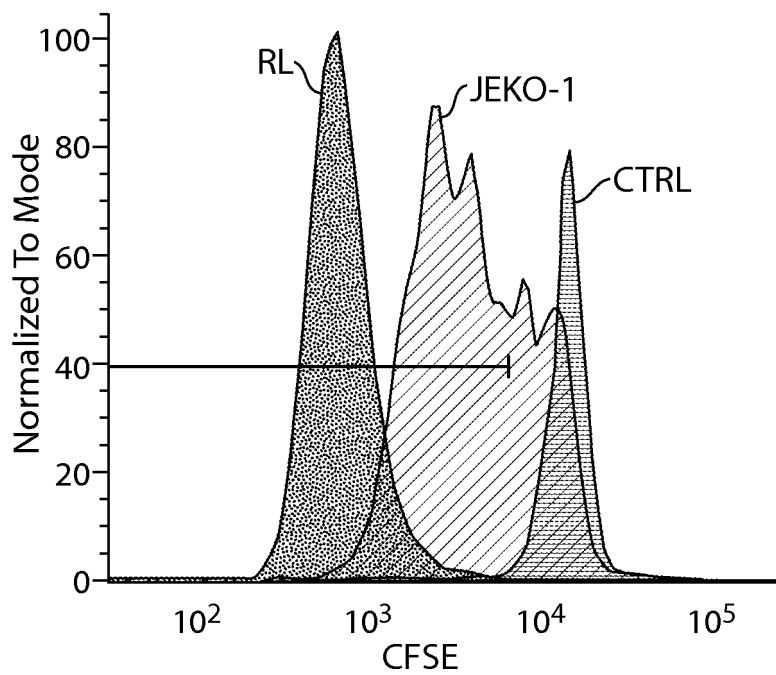
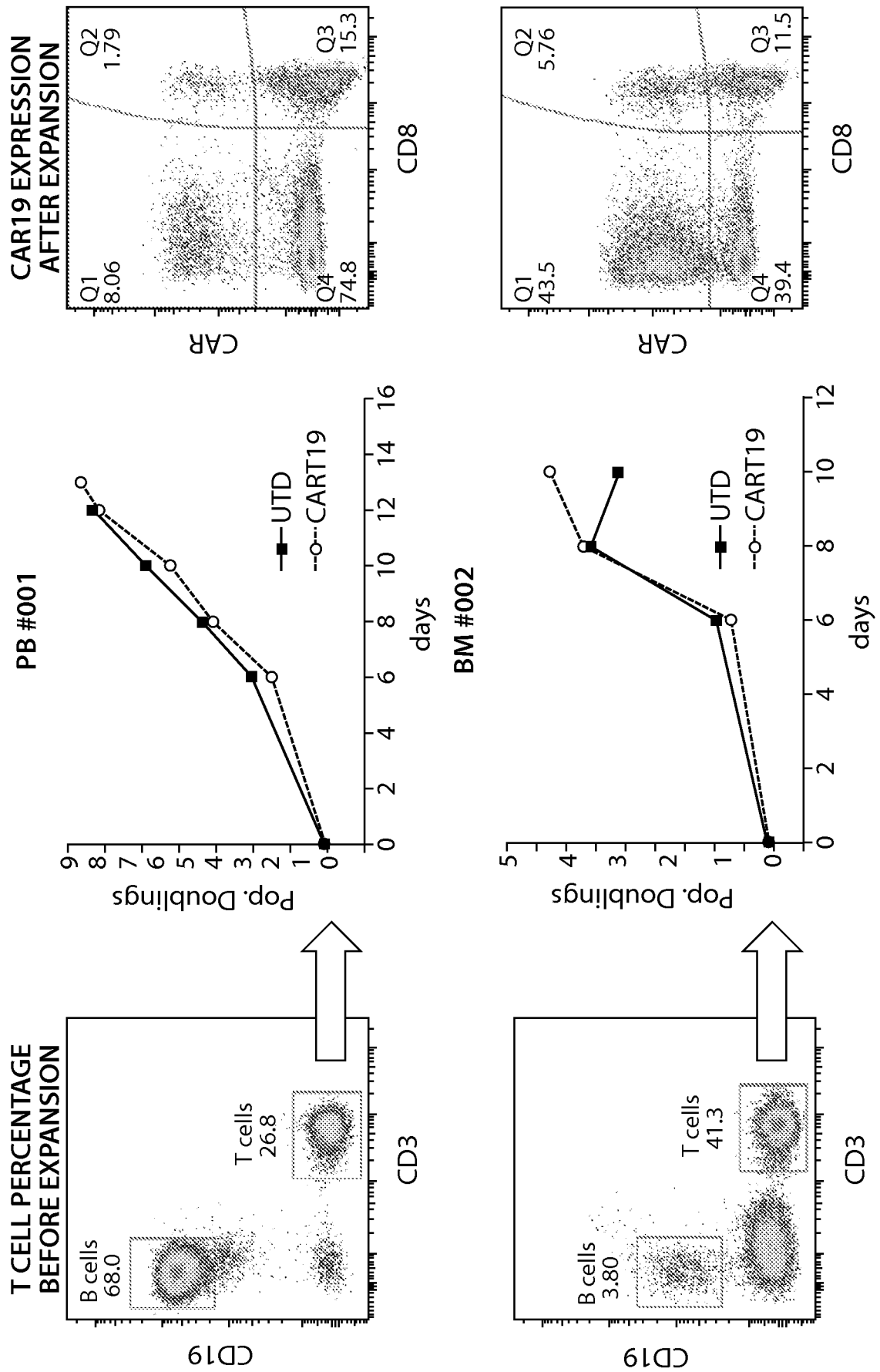


FIG. 53D



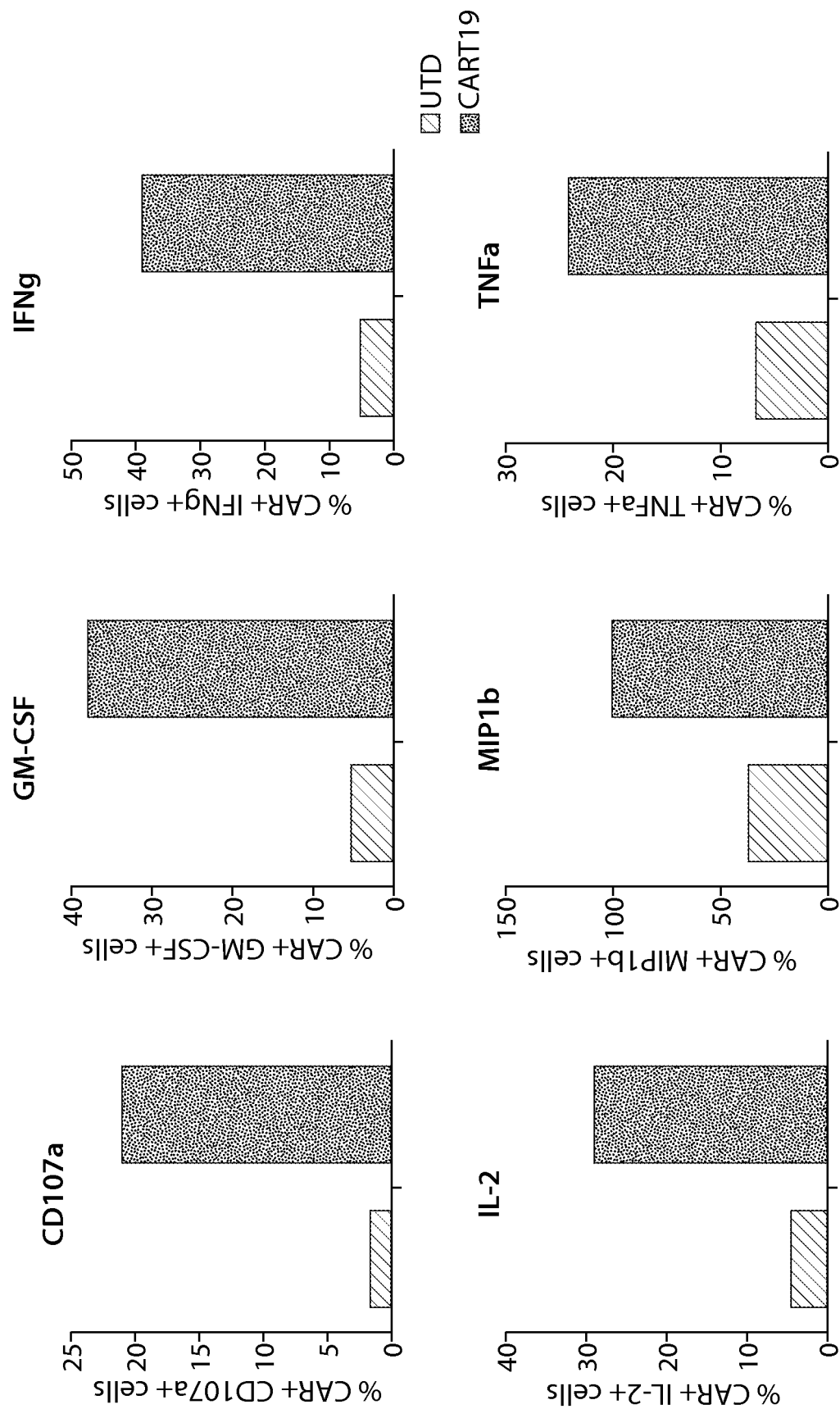


FIG. 53F

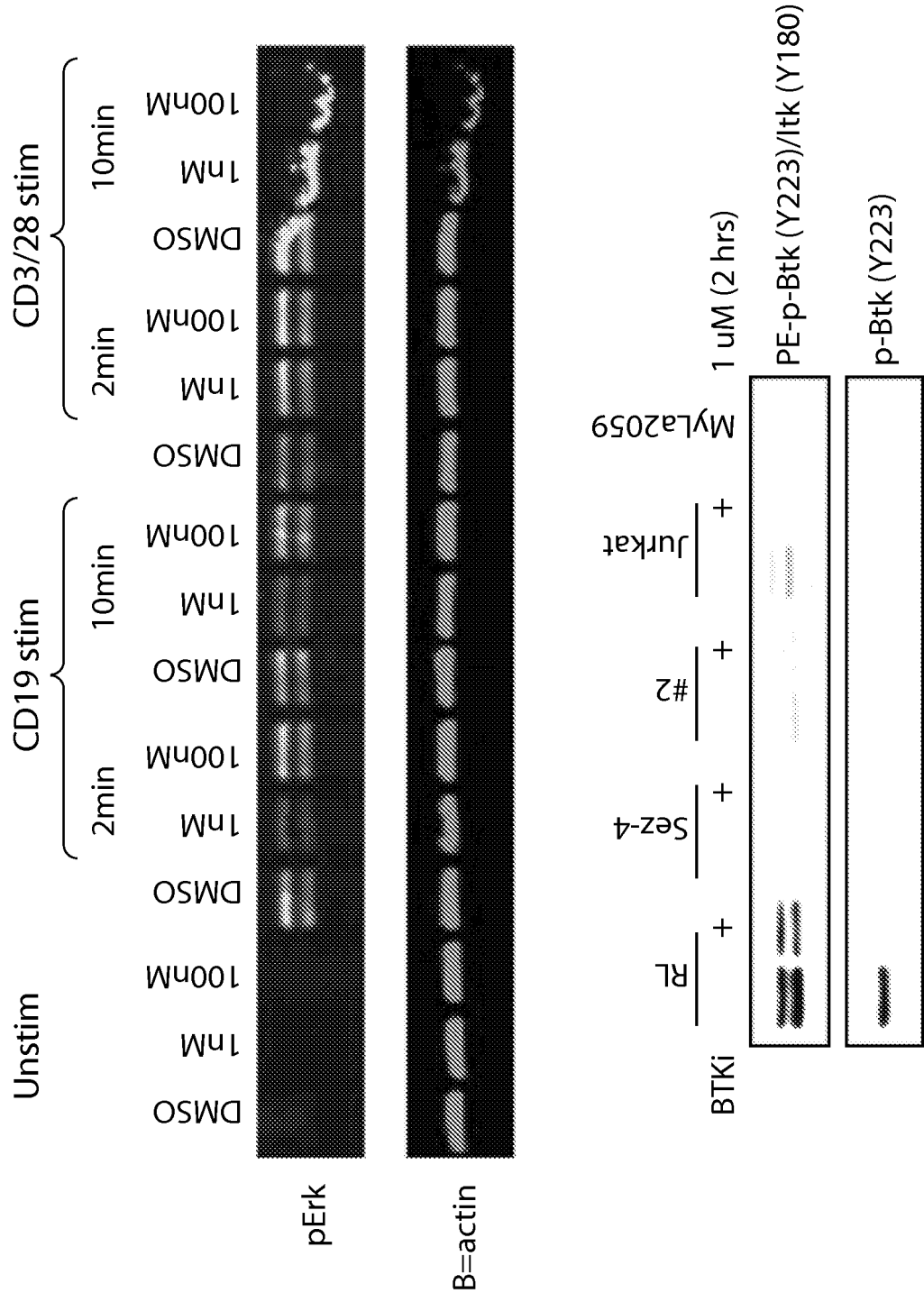


FIG. 54A

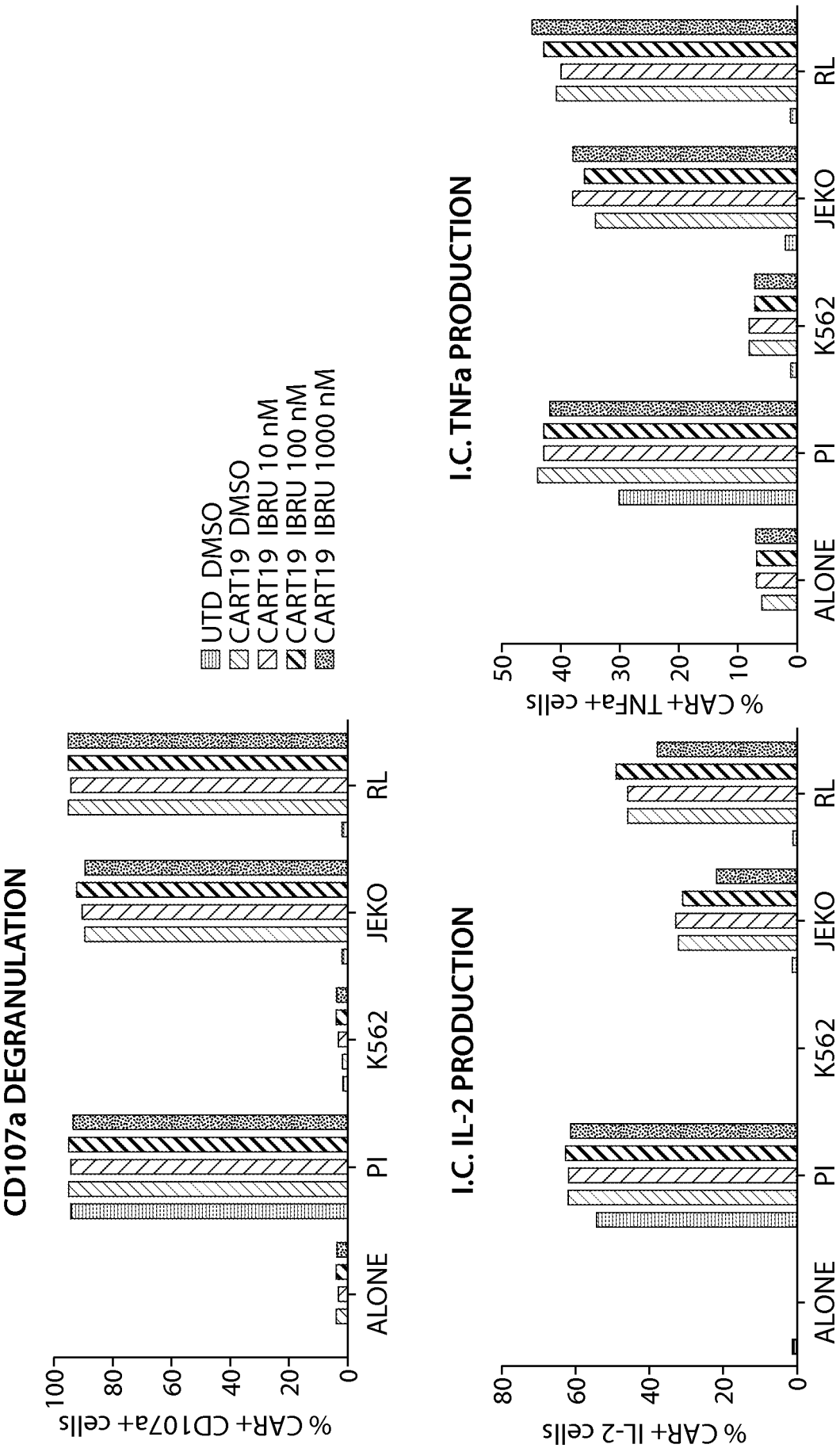


FIG. 54B

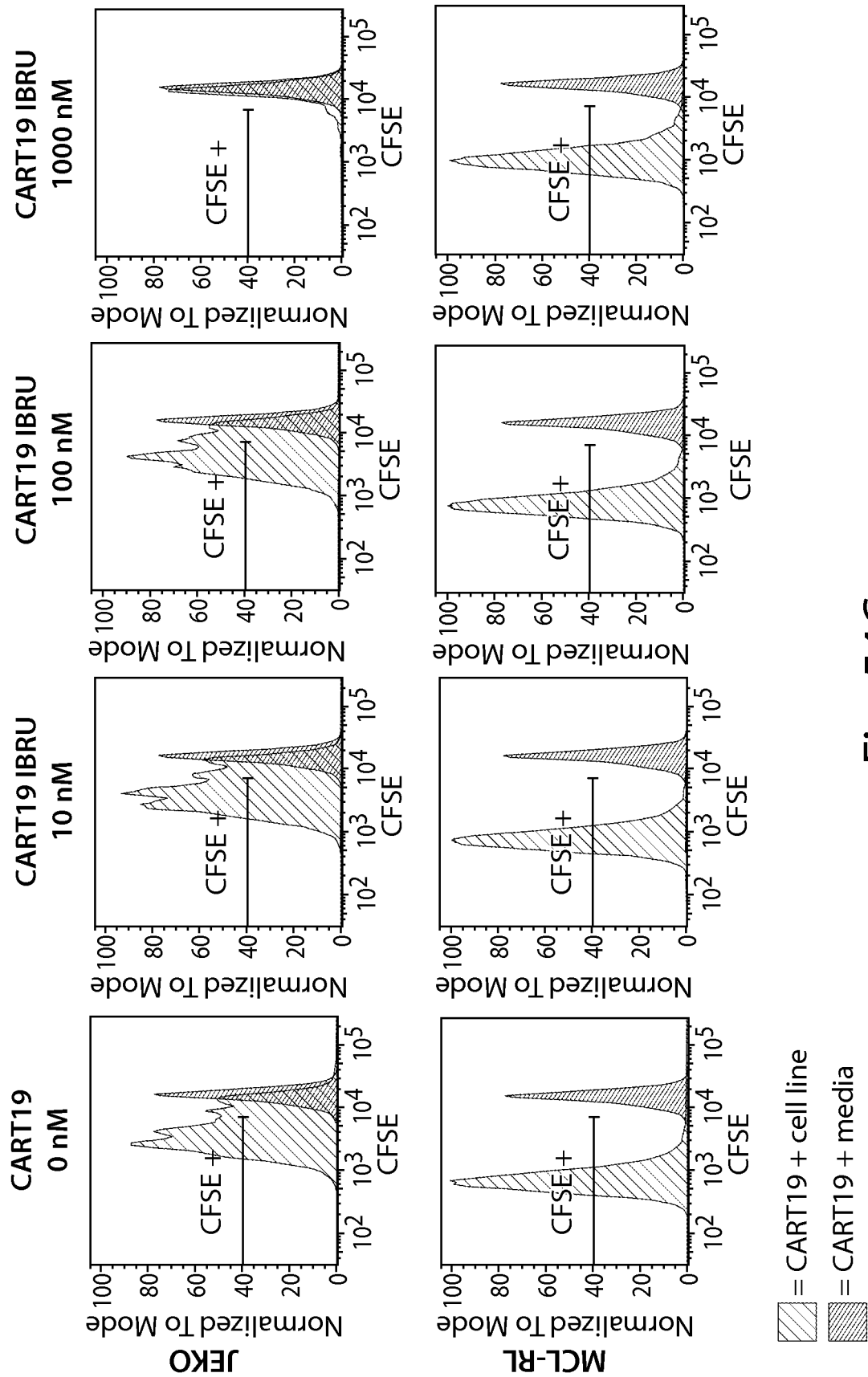


Fig. 54C

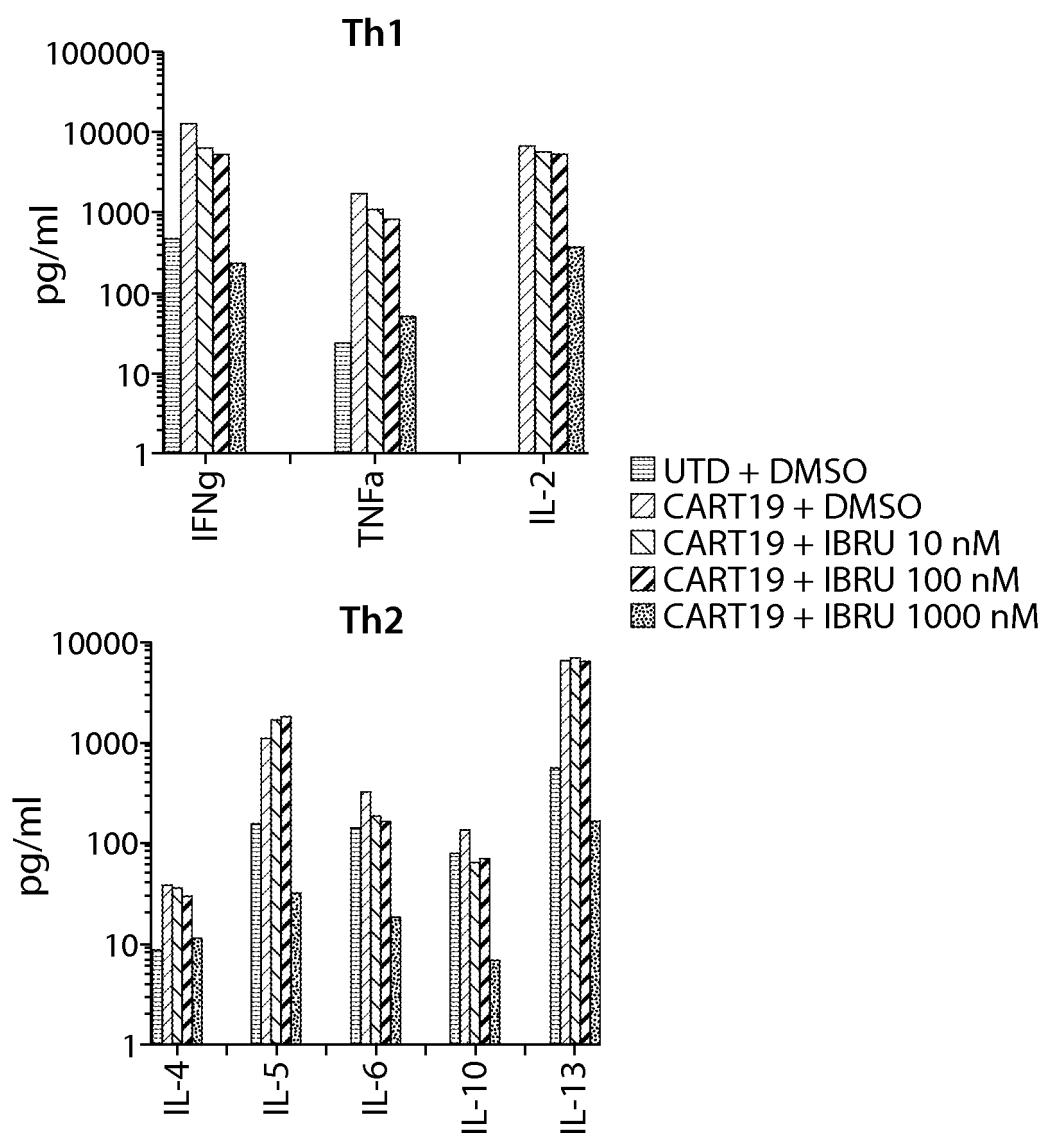


FIG. 54D-1

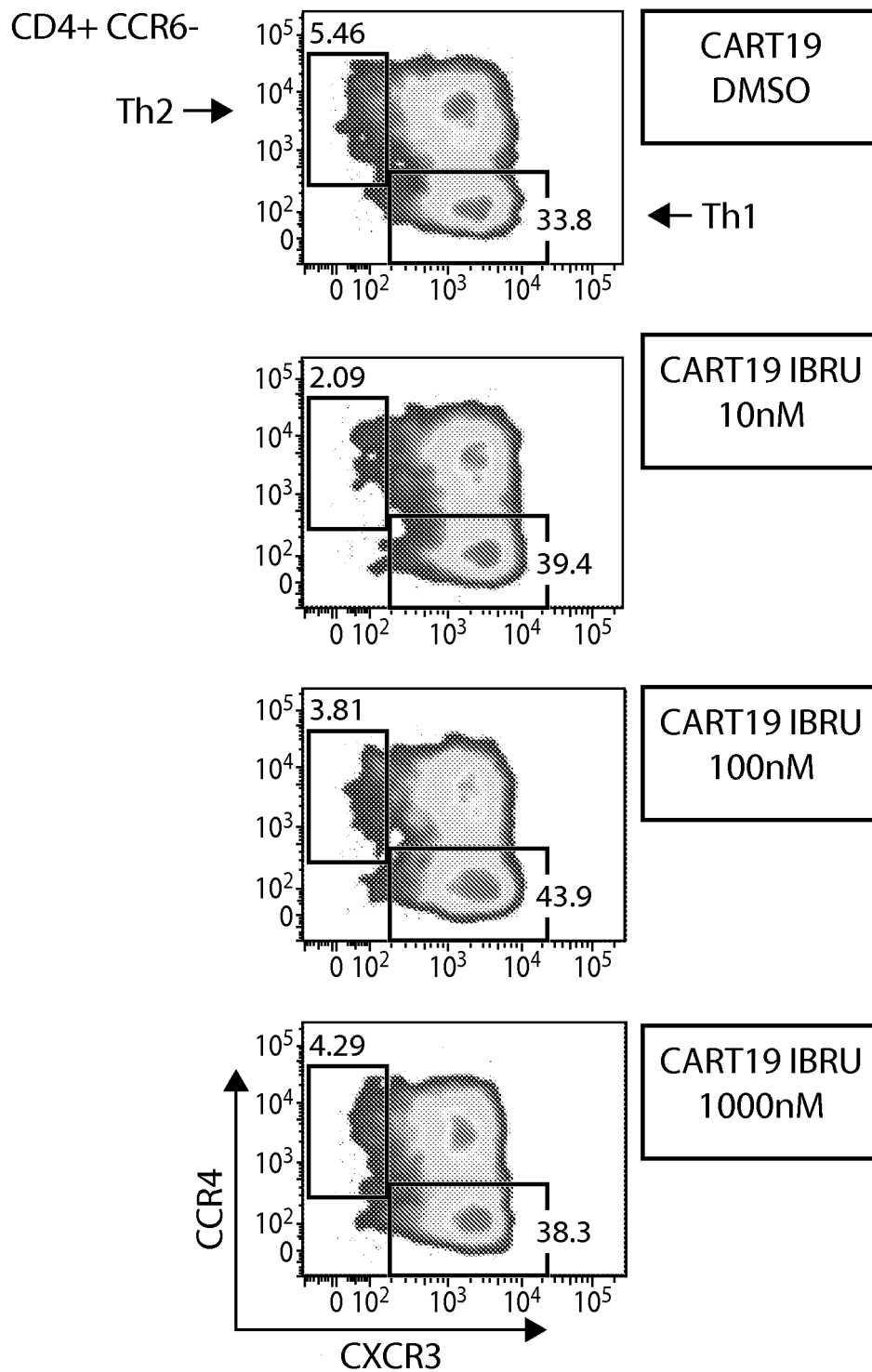


FIG. 54D-2

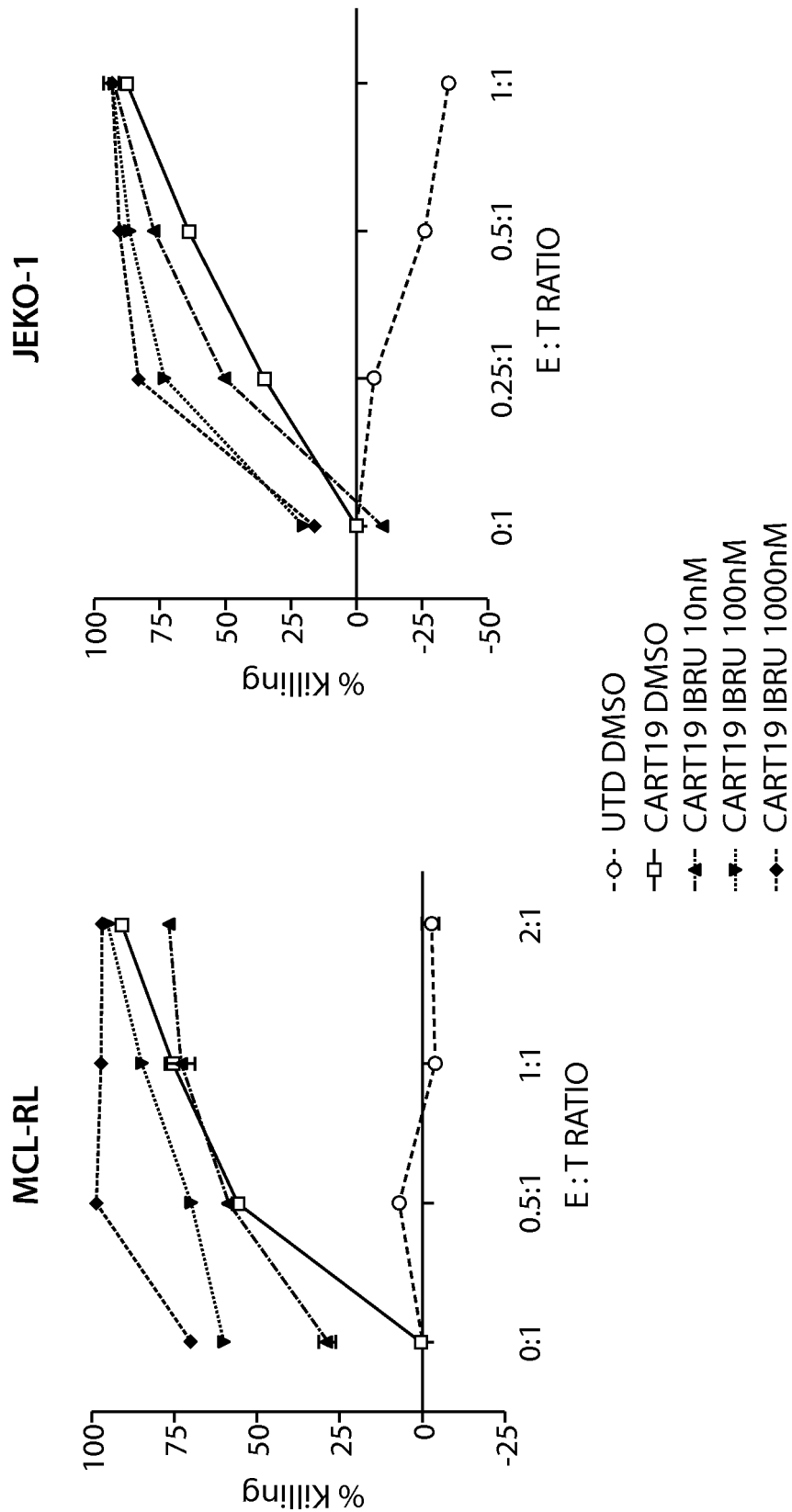
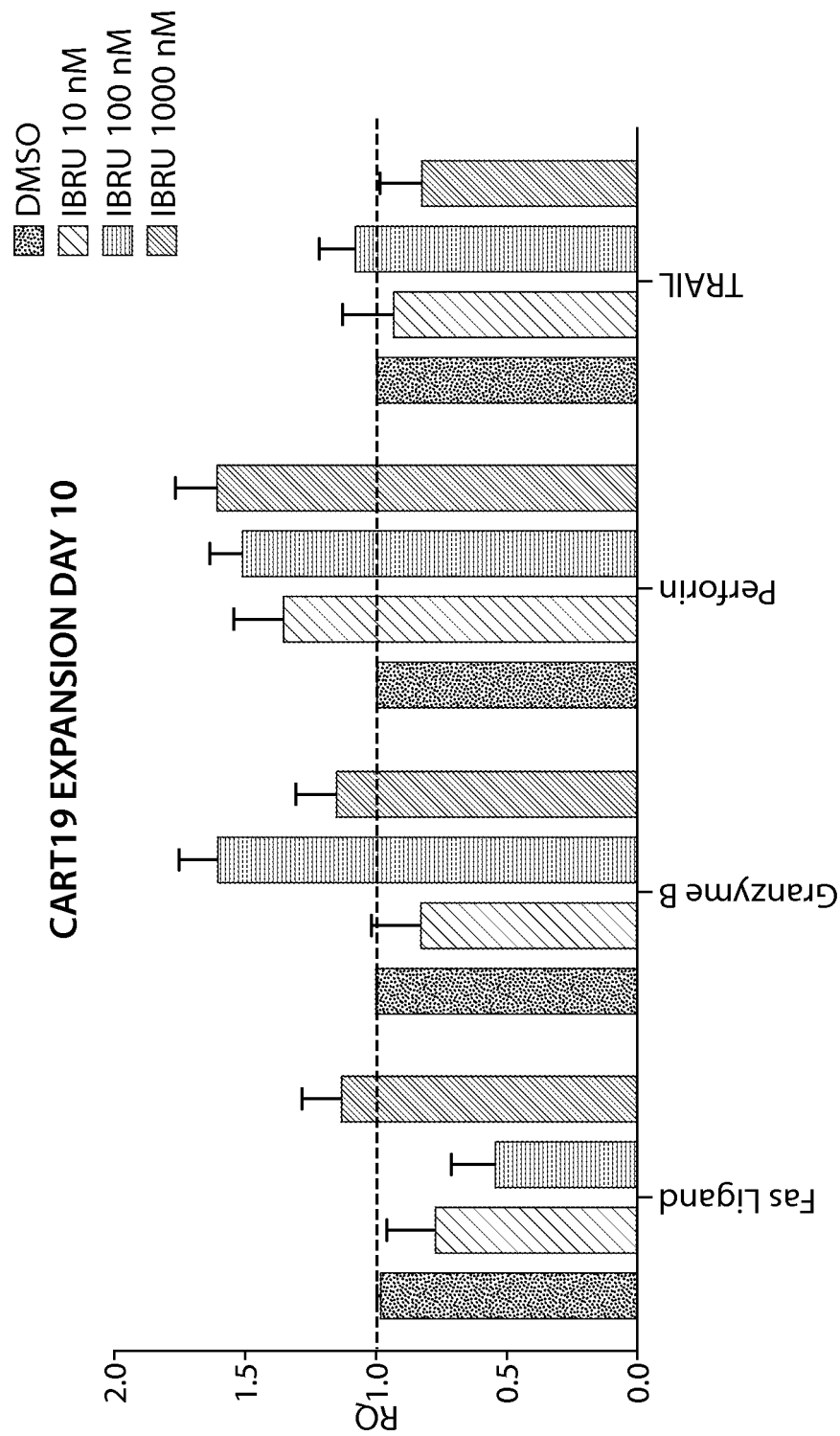


FIG. 54E



Results confirmed by flow cytometry

FIG. 54F

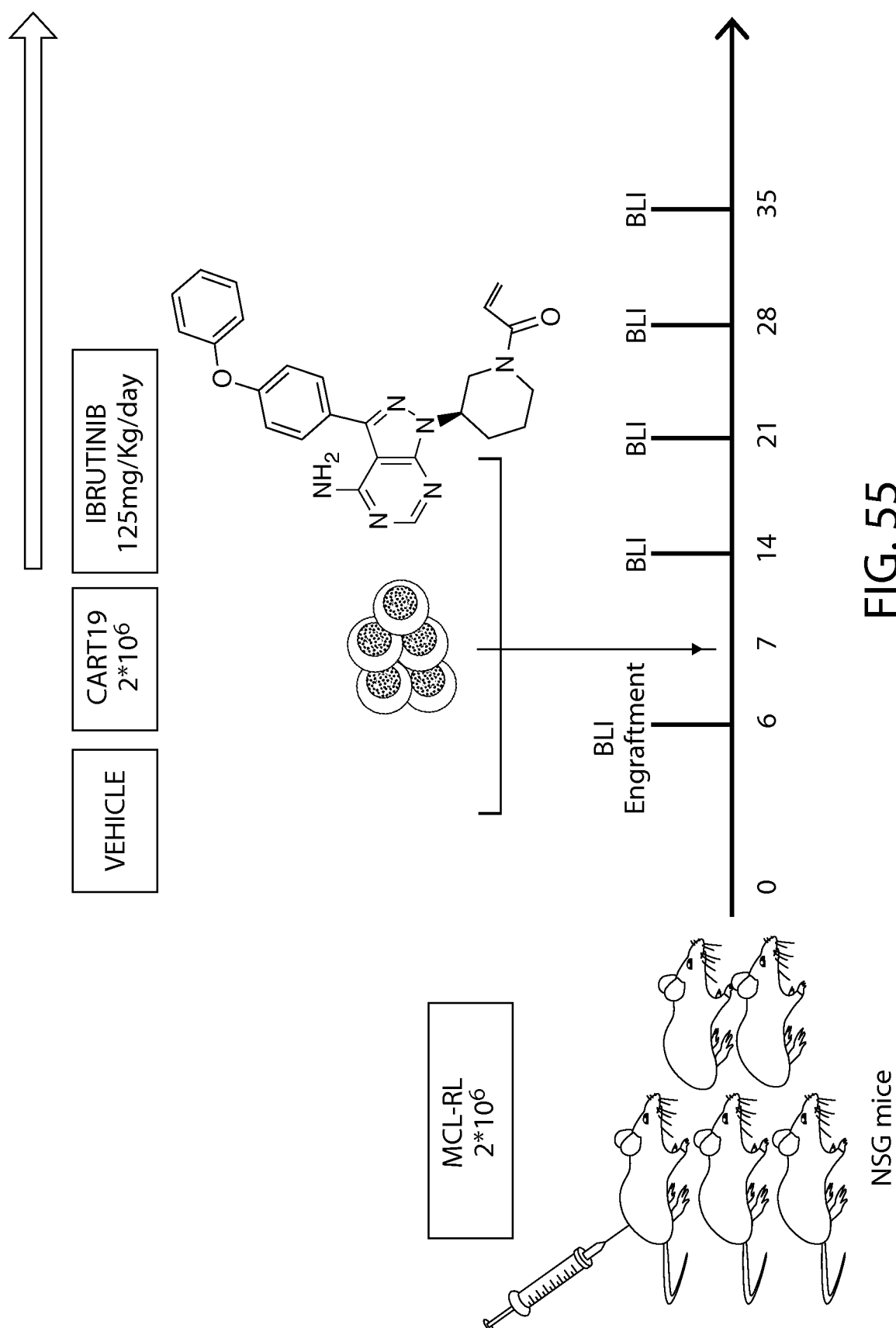


FIG. 55

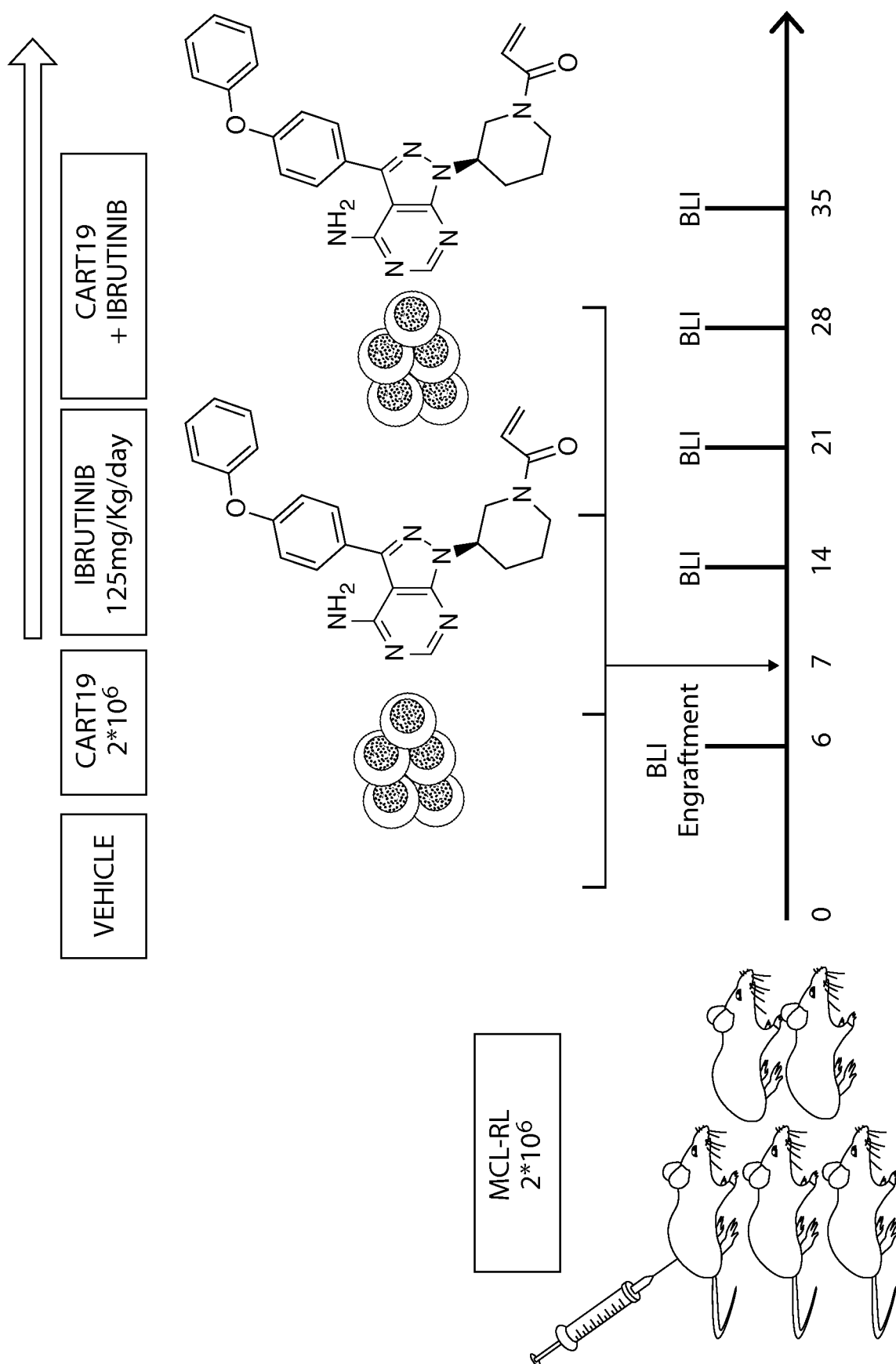
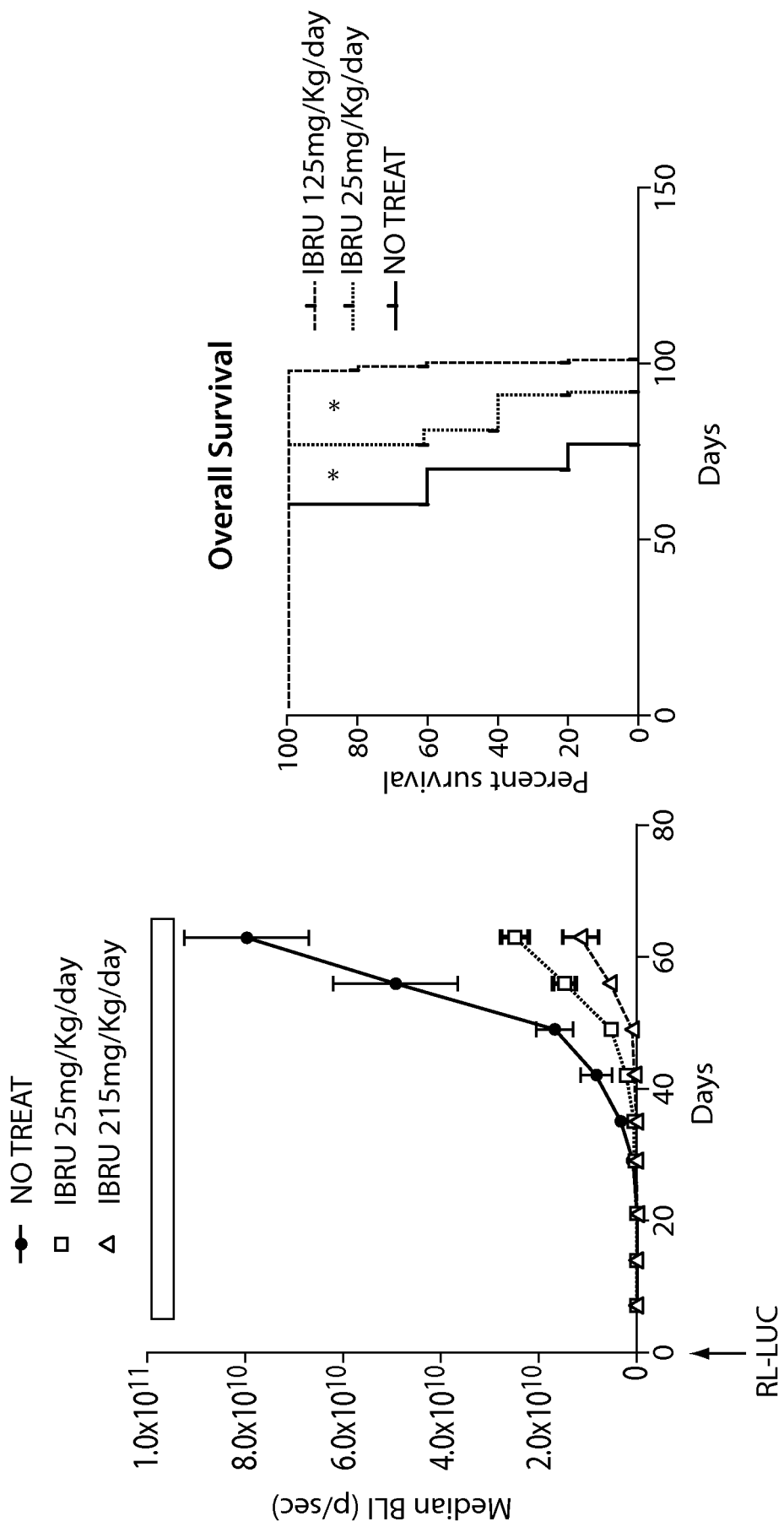


FIG. 56



4 mice per group

FIG. 57

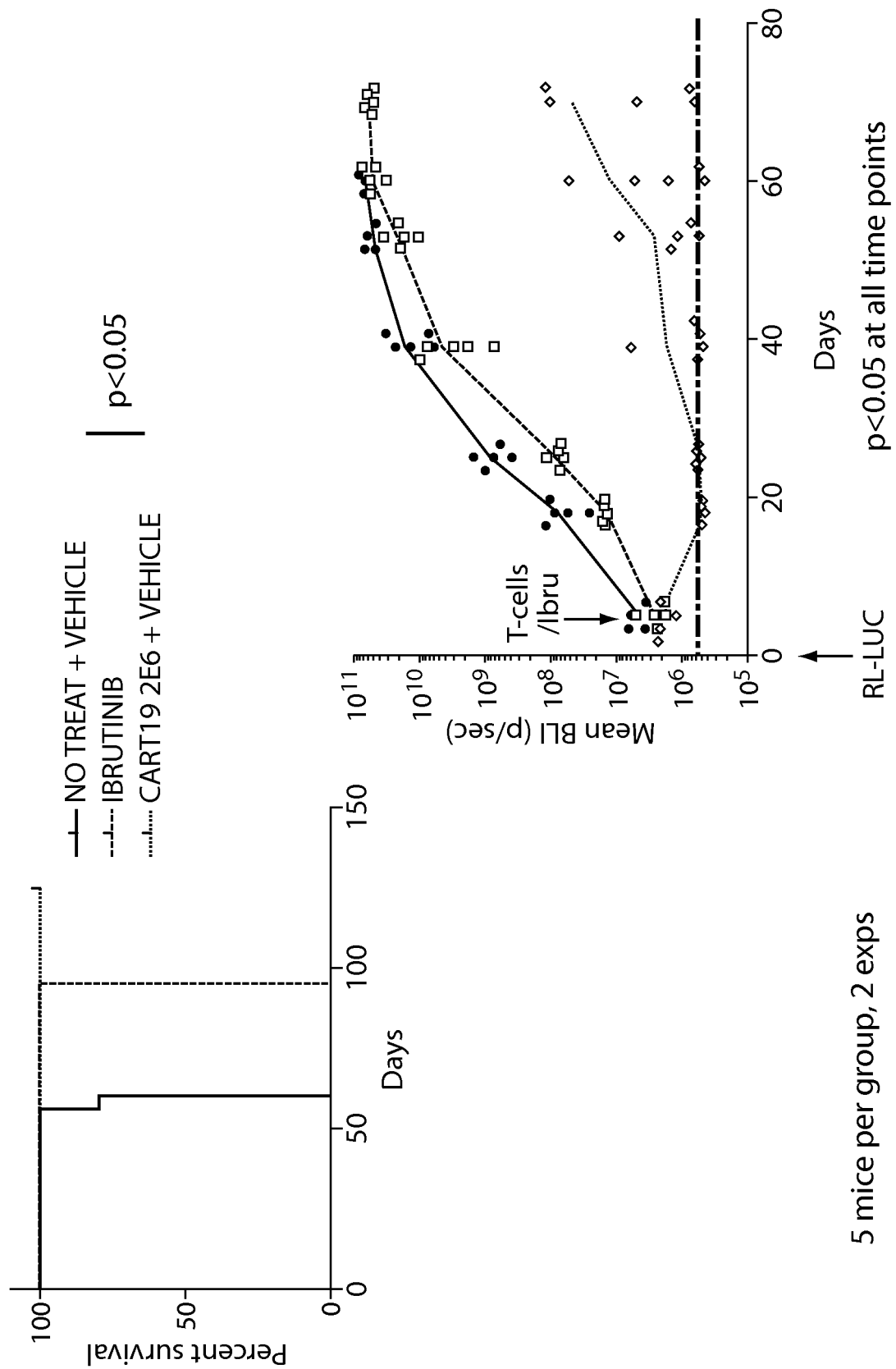


FIG. 58

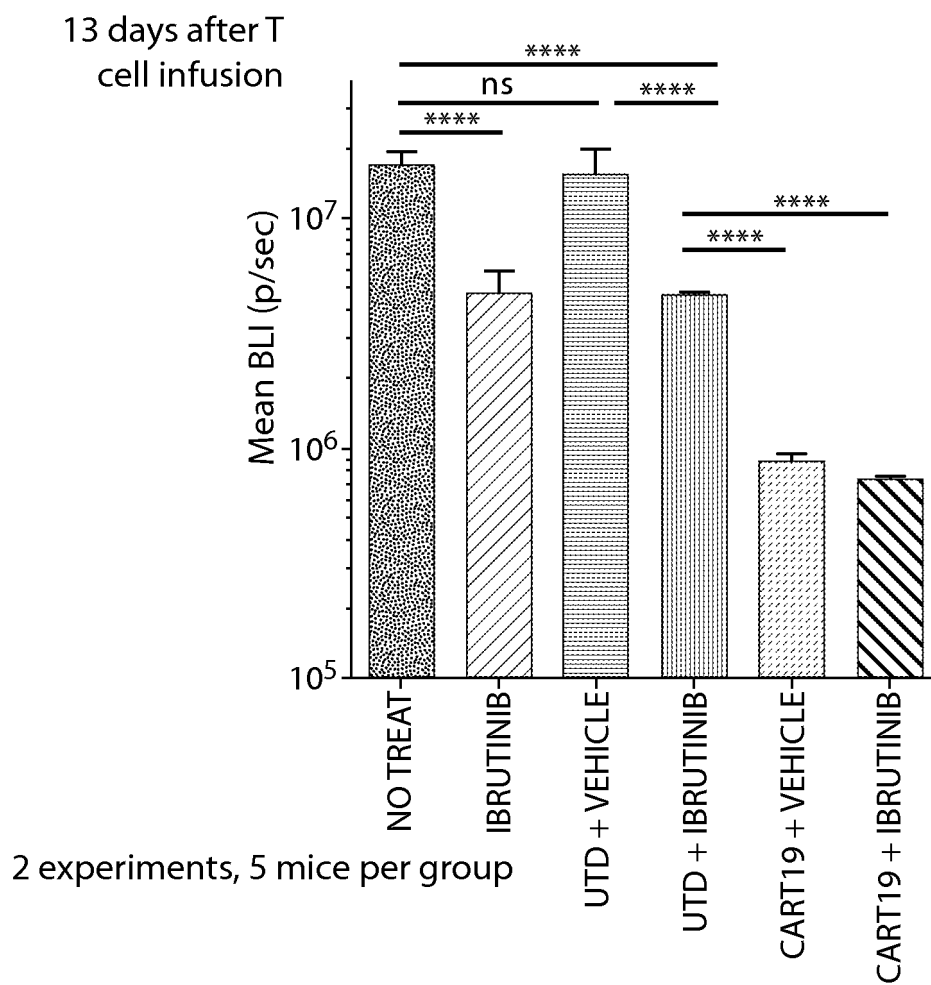


FIG. 59

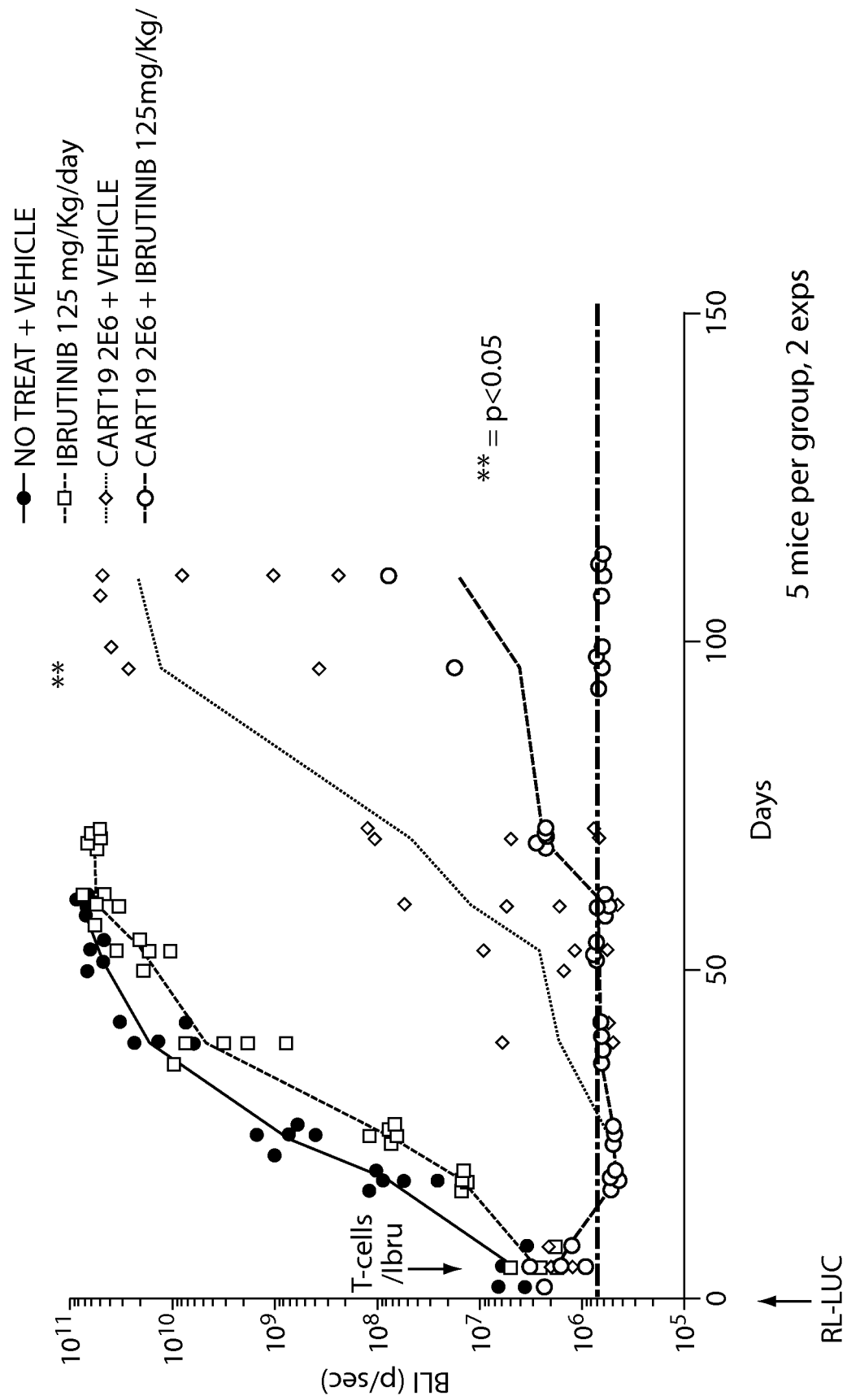


FIG. 60

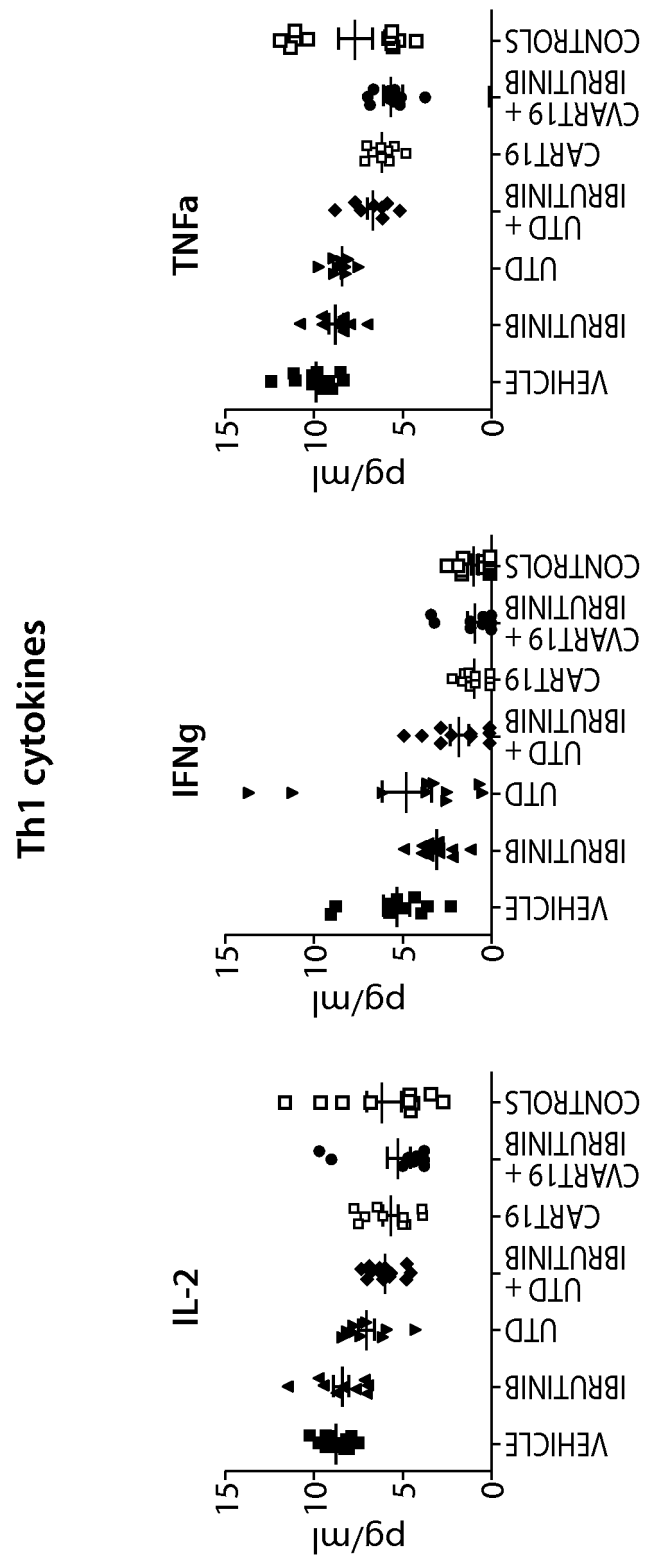


FIG. 61A

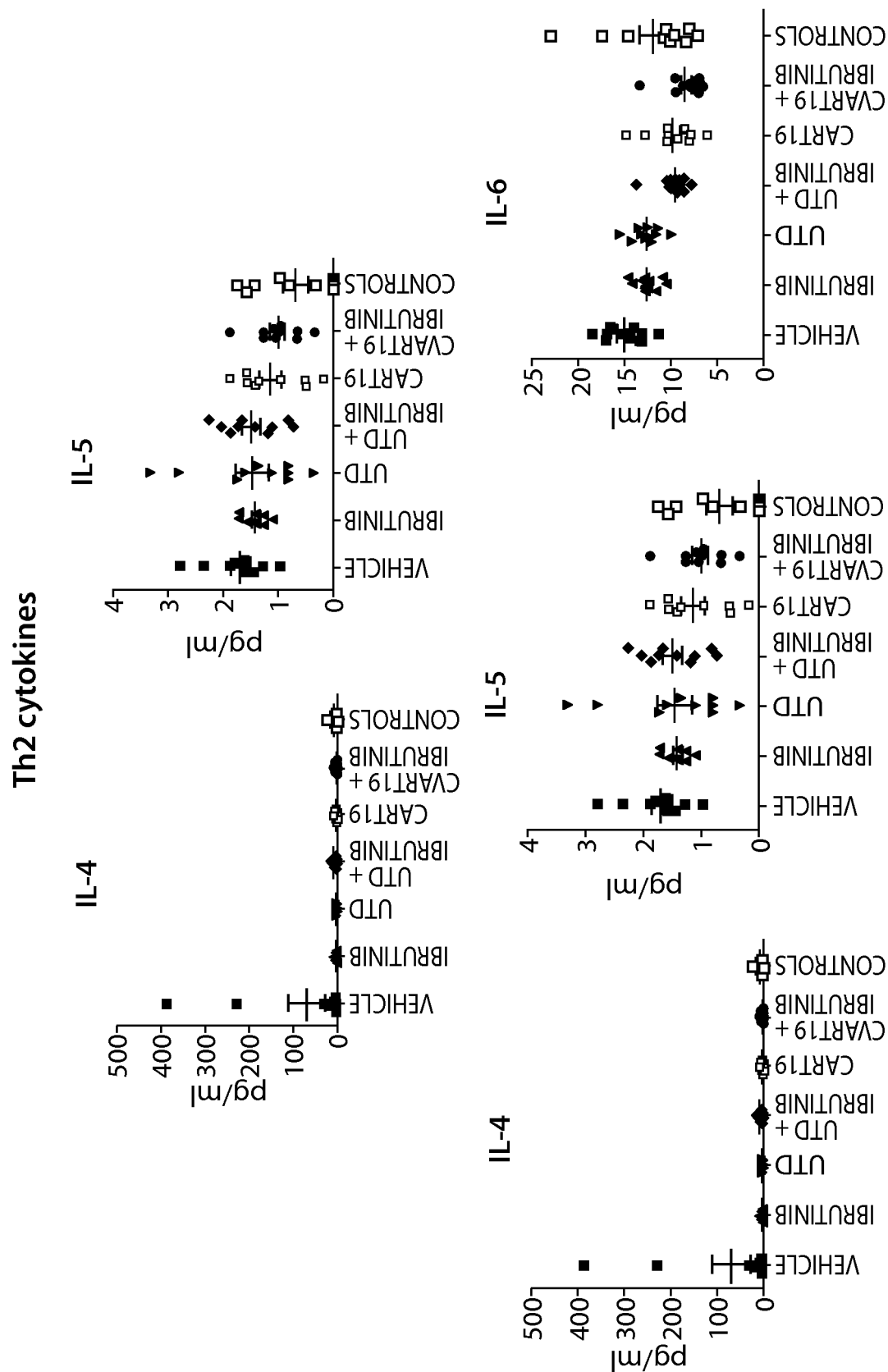
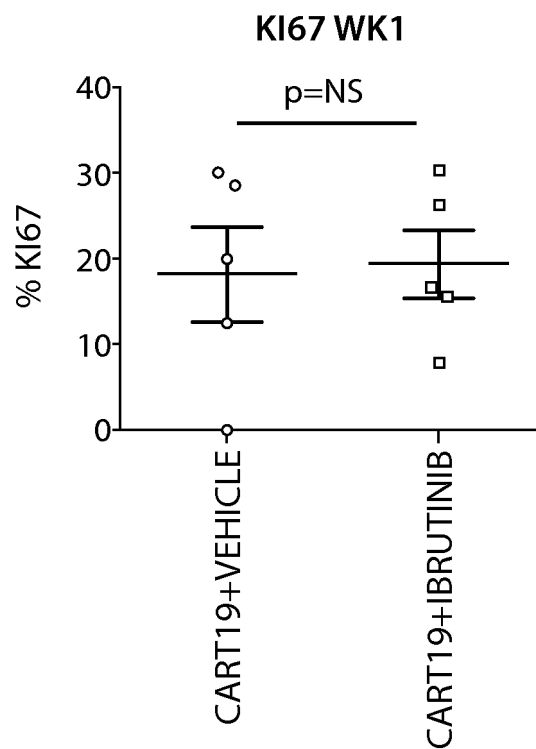
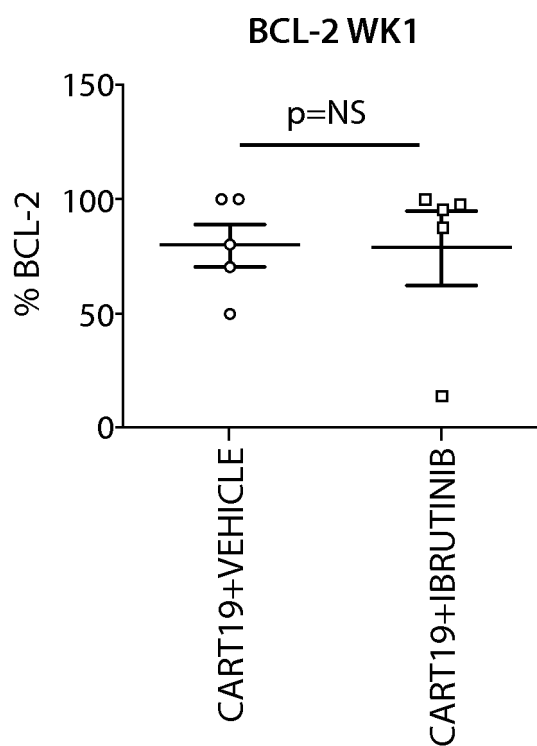


FIG. 61B

**FIG. 61C**

PBT cells, 1 week after infusion

FIG. 61D