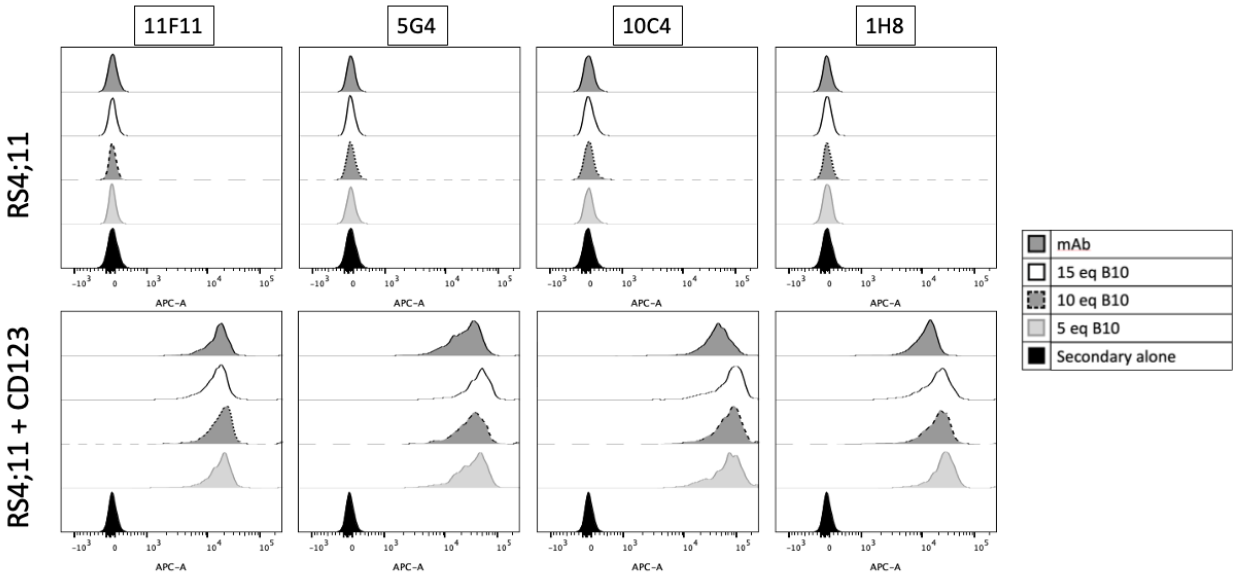
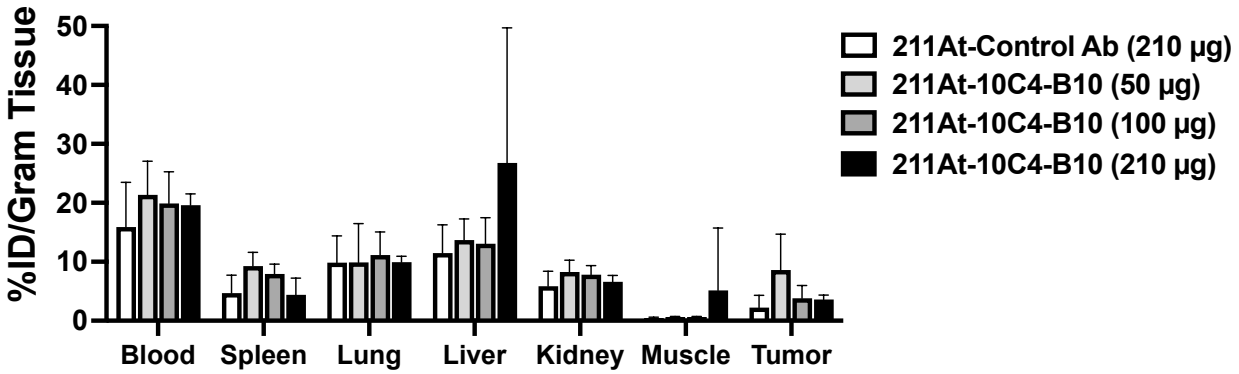
SUPPLEMENTARY FIGURES



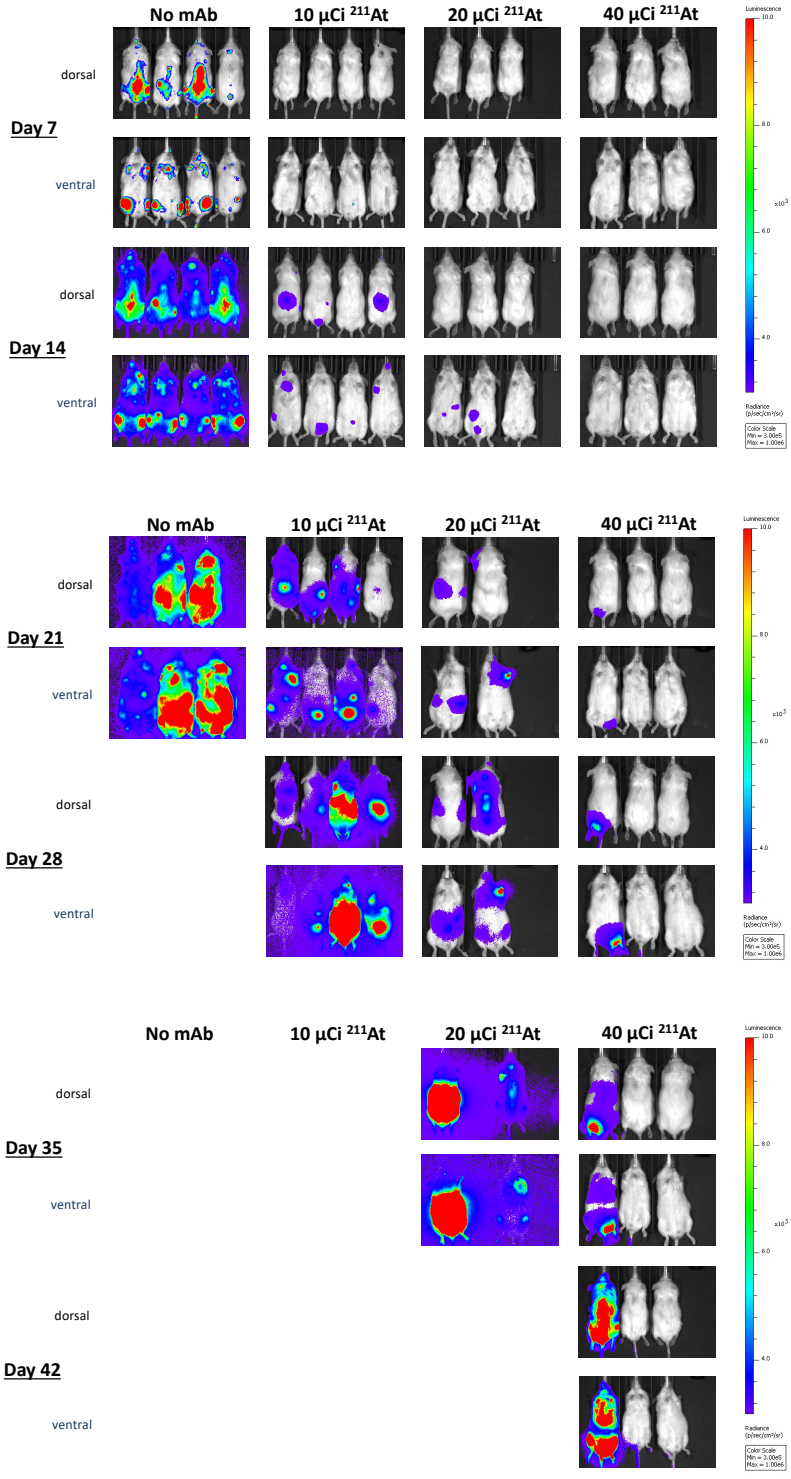
Supplementary Figure 1

Parental CD123-negative human RS4;11 ALL cells and RS4;11 cells engineered to overexpress human CD123 were used for flow cytometric phenotyping of a series of anti-CD123 mAbs (11F11, 5G4, 10C4, 1H8) that were either left unmodified or were reacted with 5, 10, or 15 equivalents of B10. A secondary mAb-only control is also shown.



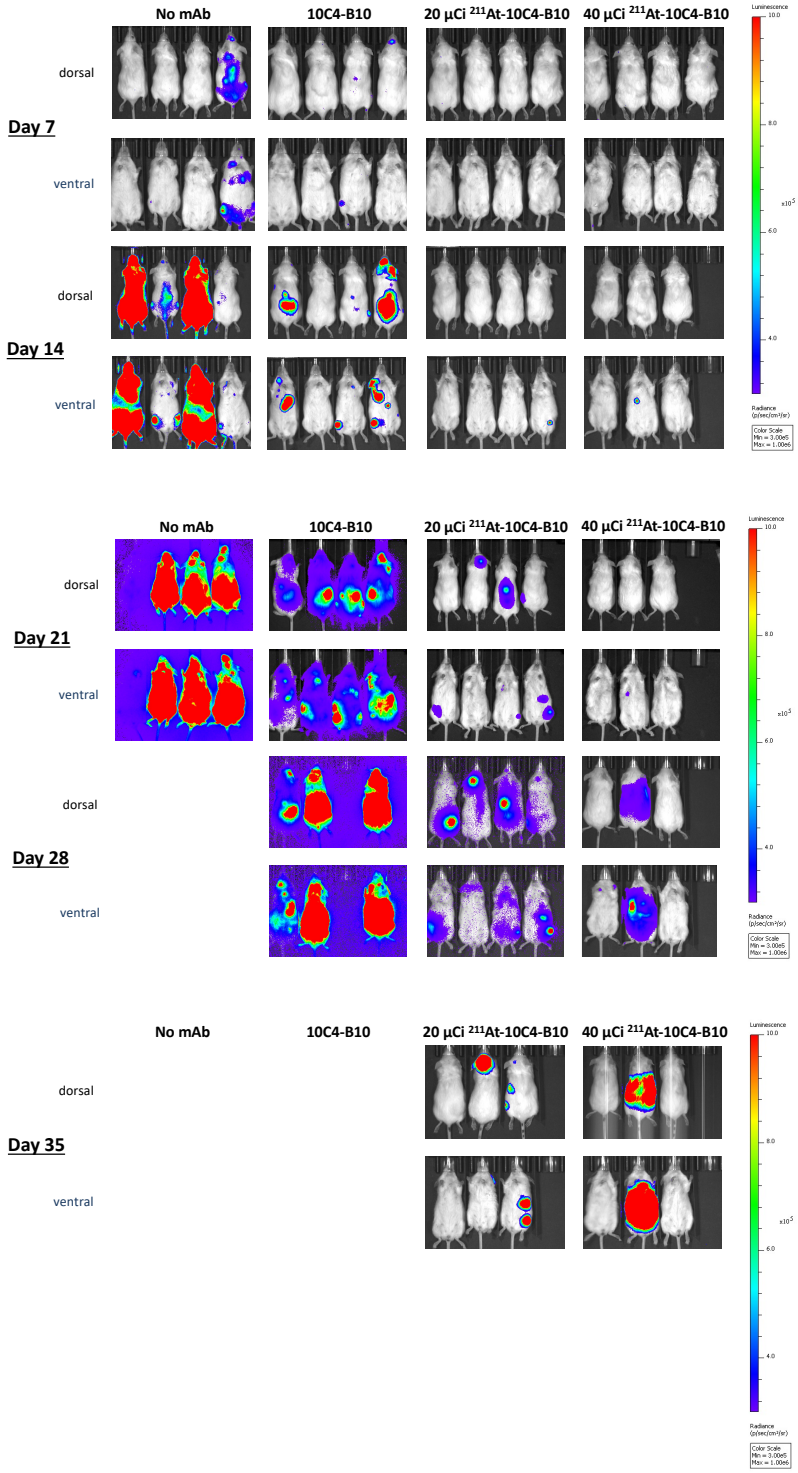
Supplementary Figure 2

***In vivo* anti-CD123 mAb dose finding study.** 10^6 parental (CD123+) MOLM-13 cells were implanted into the flanks of NRG mice. One week later, when tumors were palpable (~100 mm^3), animals (5/group) received 50 µg, 100 µg, or 210 µg a B10-cconjugated anti-CD123 mAb (10C4-B10) or 210 µg of a B10-conjugated murine IgG1 negative control mAb (BHV-1-B10), all labeled with 5 µCi ^{211}At. 7 hours later, mice were euthanized, organs harvested, and tissues analyzed on a gamma counter to calculate the percent of injected dose/gram of organ tissue (% ID/g), and radiation absorbed doses for harvested organs calculated. Data are presented as mean±SD.



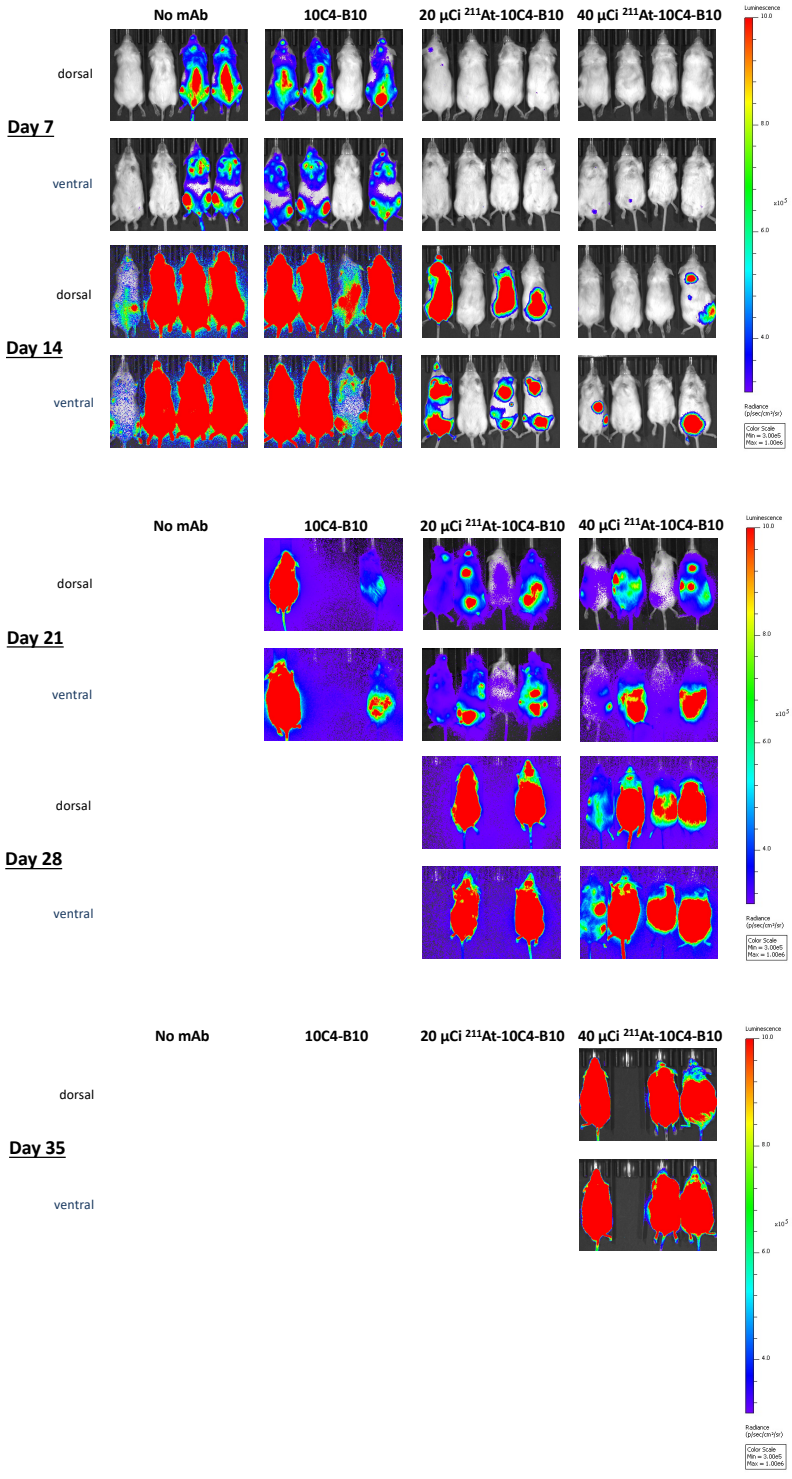
Supplementary Figure 3

Weekly *in vivo* fluorescence imaging after administration of 10C4-B10 labeled with either 10 µCi, 20 µCi, or 40 µCi of ^{211}At in NRG mice xenotransplanted with CD123+ MOLM-13 cells. Control group was left untreated.



Supplementary Figure 4

Weekly *in vivo* fluorescence imaging after administration of 10C4-B10 or 10C4-B10 labeled with either 20 µCi or 40 µCi of ^{211}At in NRG mice xenotransplanted with CD123+ MOLM-13 cells. Control group was left untreated.



Supplementary Figure 5

Weekly *in vivo* fluorescence imaging after administration of 10C4-B10 or 10C4-B10 labeled with either 20 µCi or 40 µCi of ^{211}At in NRG mice xenotransplanted with CD123- MOLM-13 cells. Control group was left untreated.