

Supplemental Materials:

Materials and Methods:

Maintenance the C3(1)Tag mice. C3(1)Tag mice were obtained from Jackson Laboratories. and maintained under strict inbreeding conditions. C3(1)Tag mice were confirmed SV40 positive by PCR prior to enrollment in the experiment. All mice were bred and maintained under specific pathogen free conditions based on the University of Washington and Earle A. Chiles Research Institute institutional animal care and use committee (IACUC) protocols.

Dosing and delivery of bexarotene and chemotherapy. Mice were randomized to each group and therapy was started when tumors were $\sim 50 \text{ mm}^3$. The chemotherapies were given intravenously through the tail vein and were given weekly. Doxorubicin was dosed at 5 mg/kg, cisplatin was dosed at 6 mg/kg, and Paclitaxel was dosed at 10 mg/kg infused weekly for both mouse models. Control mice had 50 μL PBS infused weekly. Bexarotene was dissolved in sesame oil and given 5 days a week as an oral gavage at 50 mg/kg and control mice were given 100 μL of sesame oil 5 days per week as an oral gavage. A One-Way repeated measures ANOVA with Tukey's post-test was used for comparisons of tumor growth differences in mice.

Evaluation of the tumor immune infiltrates. At sacrifice, the tumor was processed for flow cytometry. For flow cytometry evaluation, immune cells were isolated from the spleen through a 70 μm cell strainer and the tumor cells were further enriched through FICOL gradient. Fresh cells were stained with PE CD3, PE Cy-5 CD4, and PE Cy-7 CD8. All flow cytometry antibodies were from BD Biosciences. These cells were analyzed by flow cytometry on a FACSCanto flow cytometer. Flow analysis was blinded to treatment arm. Flow cytometry gating strategy supplemental figure 5.

Figure Legends:

Supplemental Figure 1: Decreased tumor growth in mice that received chemo and concurrent bexarotene in C3(1)Tag mice. C3(1)Tag female mice with $\sim 50 \text{ mm}^3$ tumors (n=5) were treated with weekly chemotherapy (red), daily bexarotene (blue), chemotherapy and bexarotene (purple), or control (PBS, black) once the mice had spontaneously developed 100 mm^3 palpable breast tumors for 4 weeks. A shows doxorubicin chemotherapy, B shows cisplatin chemotherapy, and C shows paclitaxel chemotherapy in C3(1)Tag mice. * $p < 0.05$

Supplemental Figure 2: Increased CD8 immune infiltrate in C(3)1Tag. Evaluating the tumors at sacrifice by flow cytometry showed that there were increased CD3+CD8+ T cells by flow cytometry in chemotherapy, bexarotene, or chemotherapy and bexarotene but there is no additive immune infiltrate with the combination. A treated with doxorubicin chemotherapy, B with cisplatin chemotherapy, and C with paclitaxel chemotherapy in C3(1)Tag mice (n=5). * $p < 0.05$

Supplemental Figure 3: Tumor growth individual mice TgMMTV-neu. TgMMTV-neu female mice (n=5) were treated with weekly chemotherapy (red), daily bexarotene (blue), chemotherapy

and bexarotene (purple), or control (PBS, black) once the mice had spontaneously developed 100 mm³ palpable breast tumors for 4 weeks. (A) bexarotene, (B-D) chemotherapies, (E-G) chemotherapy+bexarotene.

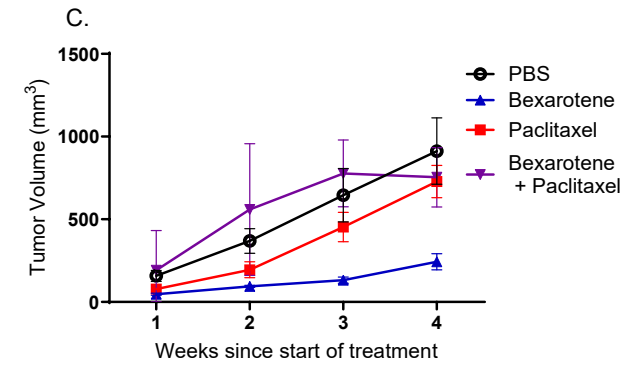
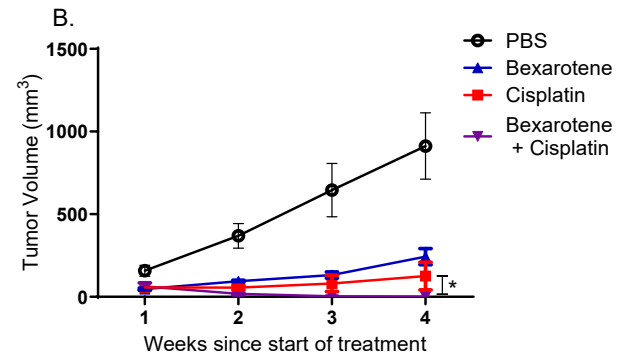
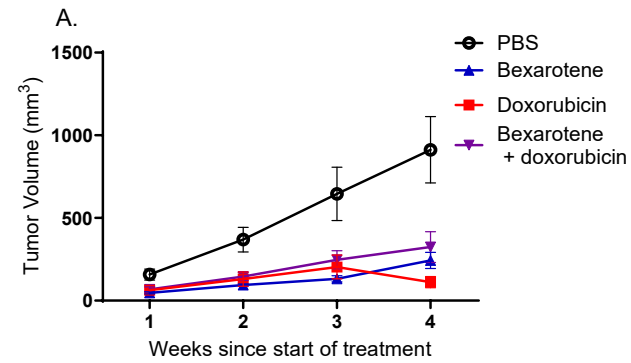
Supplemental Figure 4: Tumor growth individual mice C3(1)Tag. C3(1)Tag female mice (n=5) were treated with weekly chemotherapy (red), daily bexarotene (blue), chemotherapy and bexarotene (purple), or control (PBS, black) once the mice had spontaneously developed 50 mm³ palpable breast tumors for 4 weeks. (A) bexarotene, (B-D) chemotherapies, (E-G) chemotherapy+bexarotene.

Supplemental Figure 5: Gaiting strategy for mouse flow cytometry.

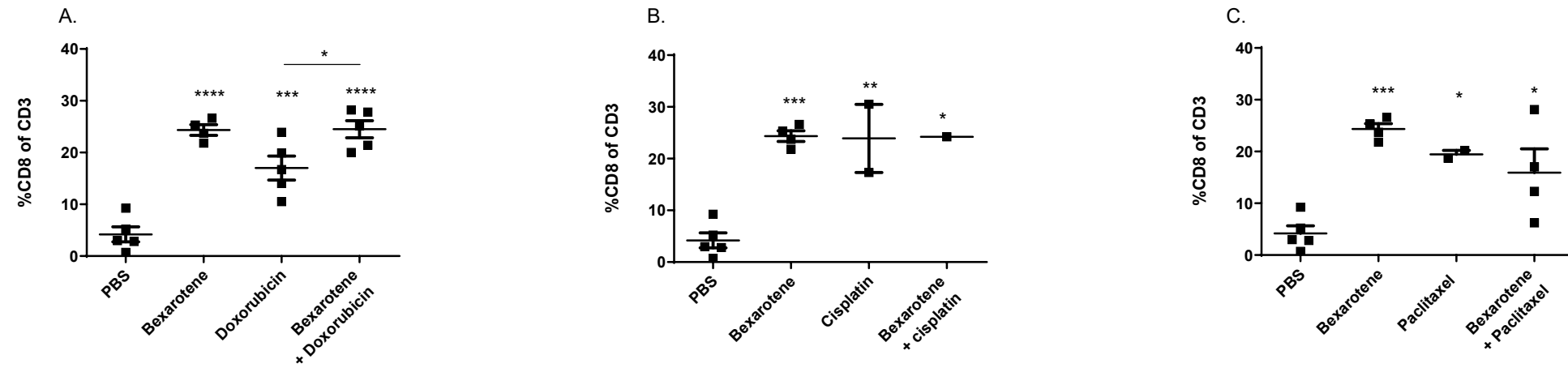
Supplemental Figure 6: Gaiting strategy for human RXR expression.

Supplemental Figure 7: Gaiting strategy for human dendritic cell maturation.

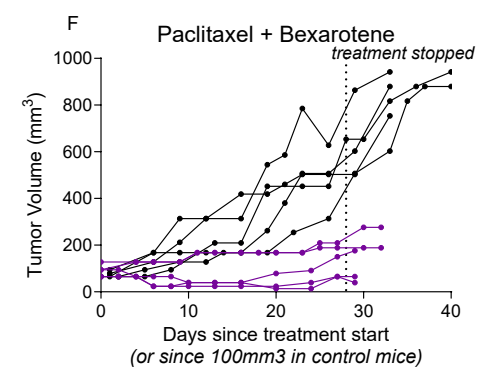
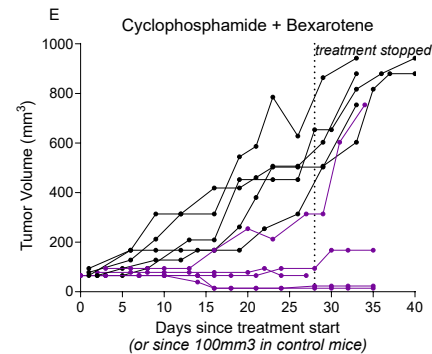
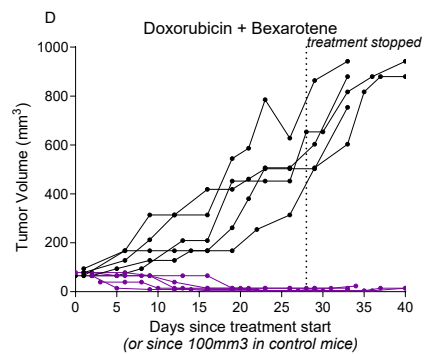
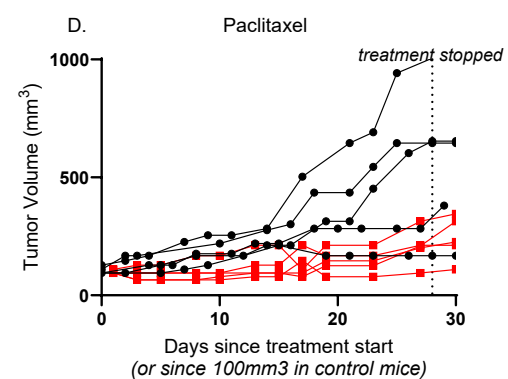
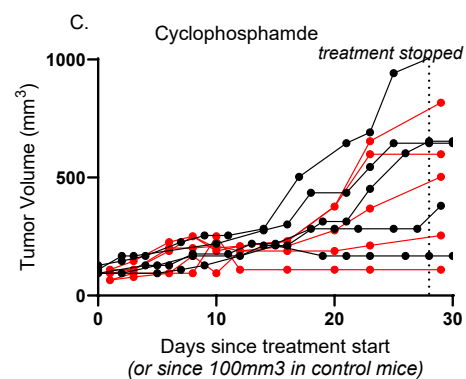
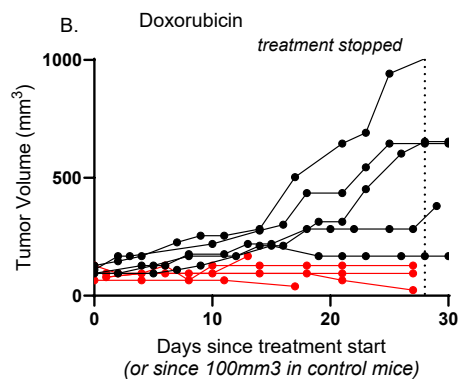
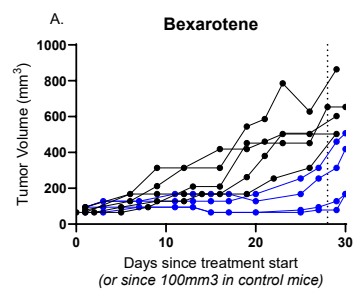
Supplemental Figure 1



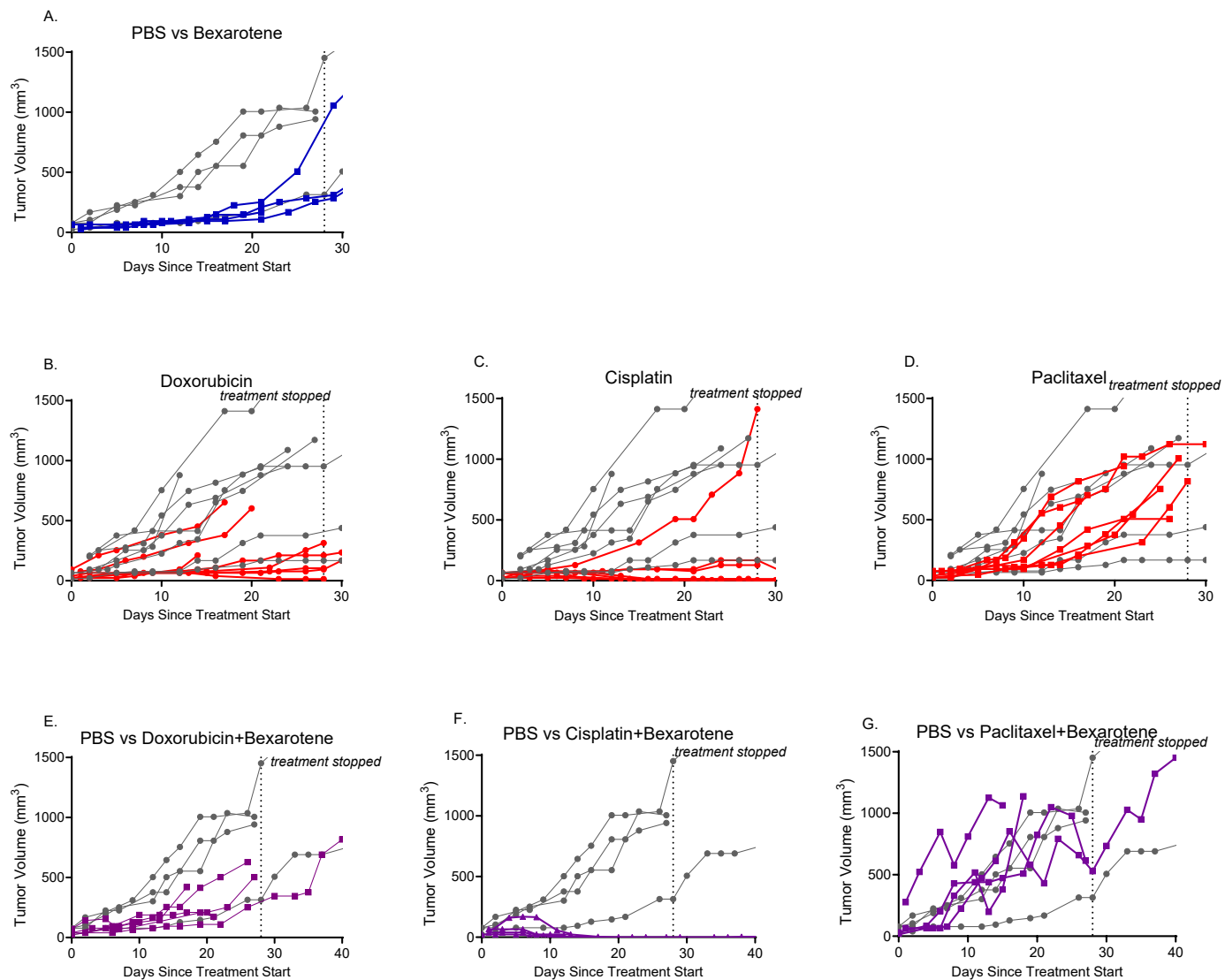
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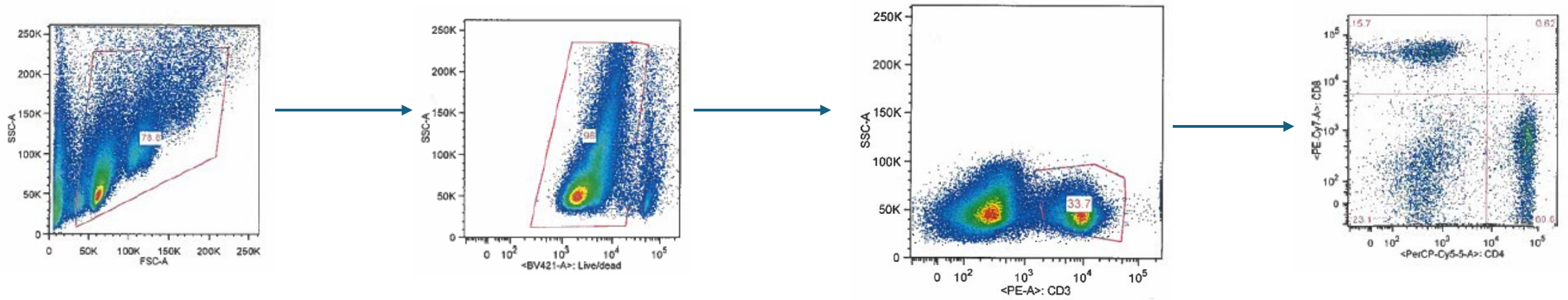
Supplemental Figure 3



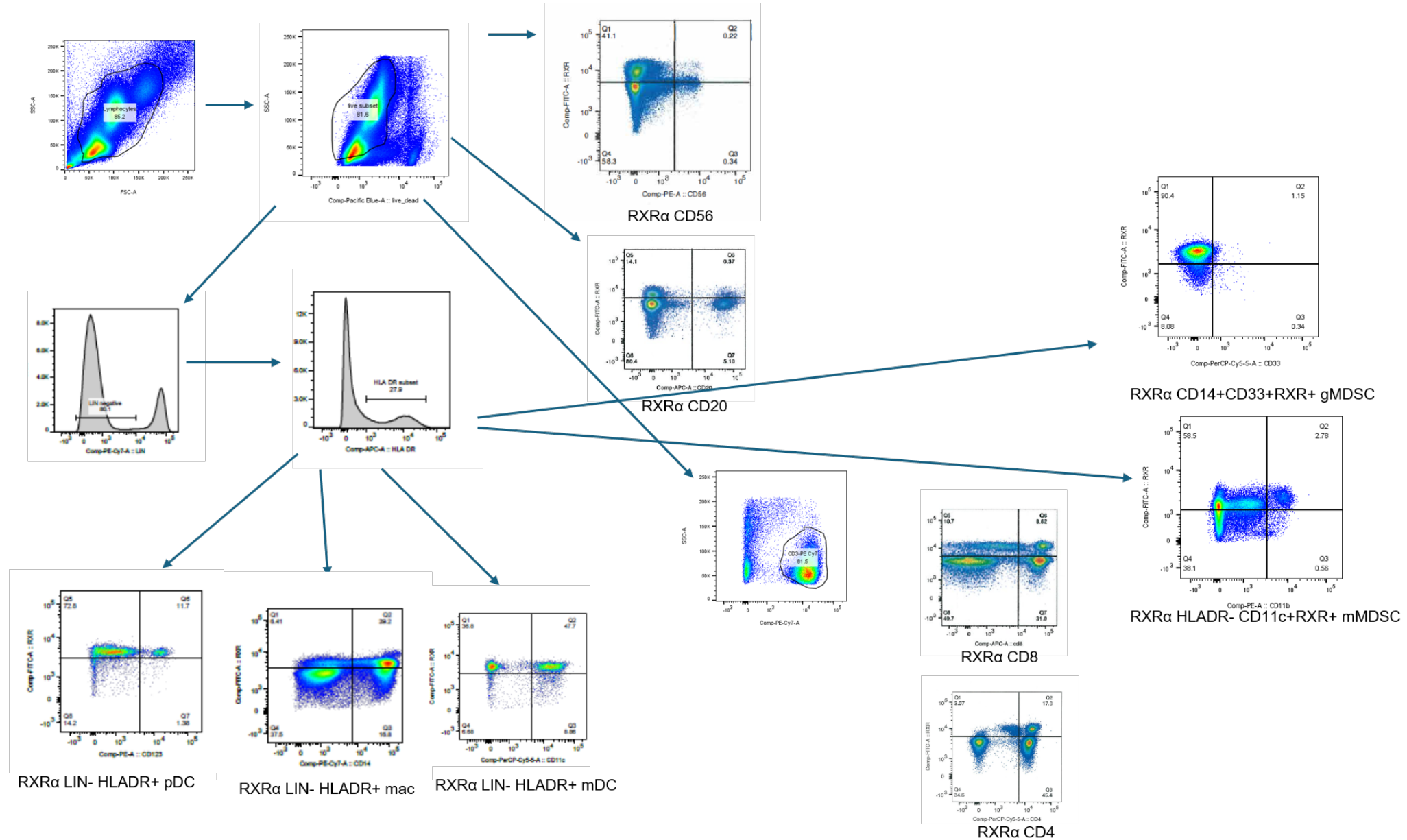
Supplemental Figure 4



Supplemental Figure 5



Supplemental Figure 6



Supplemental Figure 7

