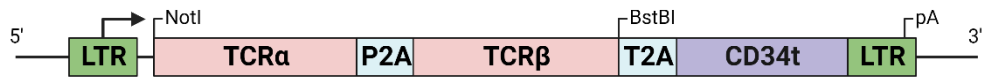
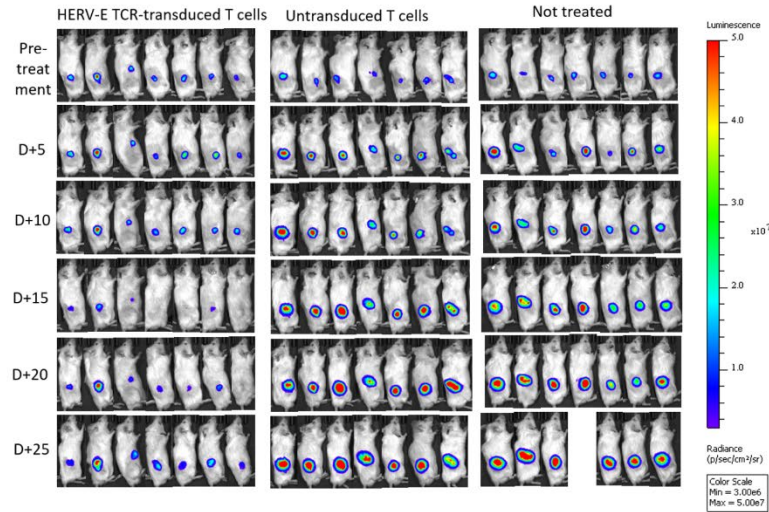
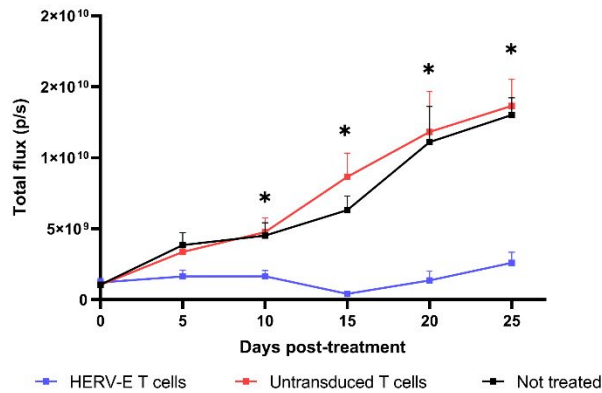
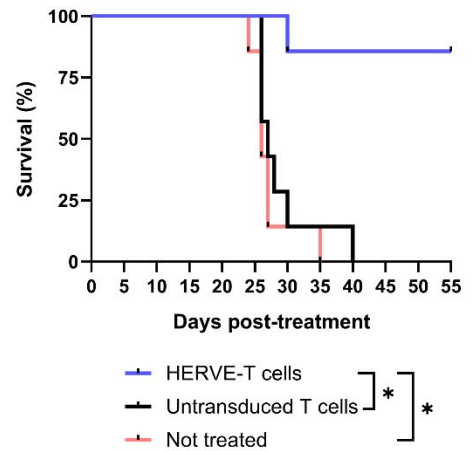


Supplementary material:



Supplementary item 1. The HERV-E TCR retroviral construct. SAMEN CMV/SR α retroviral vector encoding HERV-E TCR.

A**B****C**

Supplementary item 2. HERV-E T cells mediate regression of ccRCC tumors in vivo in a tumor bearing mouse model. NSG mice with established (10 days) luciferase expressing subcutaneous RCC1 WT tumors were treated with a single intravenous injection of either HERV-E T cells, untransduced T cells from the same donor, or did not receive T cells. Tumor burden was evaluated by serial BLI at the indicated timepoints. **(A)** Bioluminescence signal shows tumor burden in each treatment group at indicated timepoints after the T cell injection. **(B)** Bioluminescent quantification of ccRCC tumor burden in mice. Error bars represent the SEM

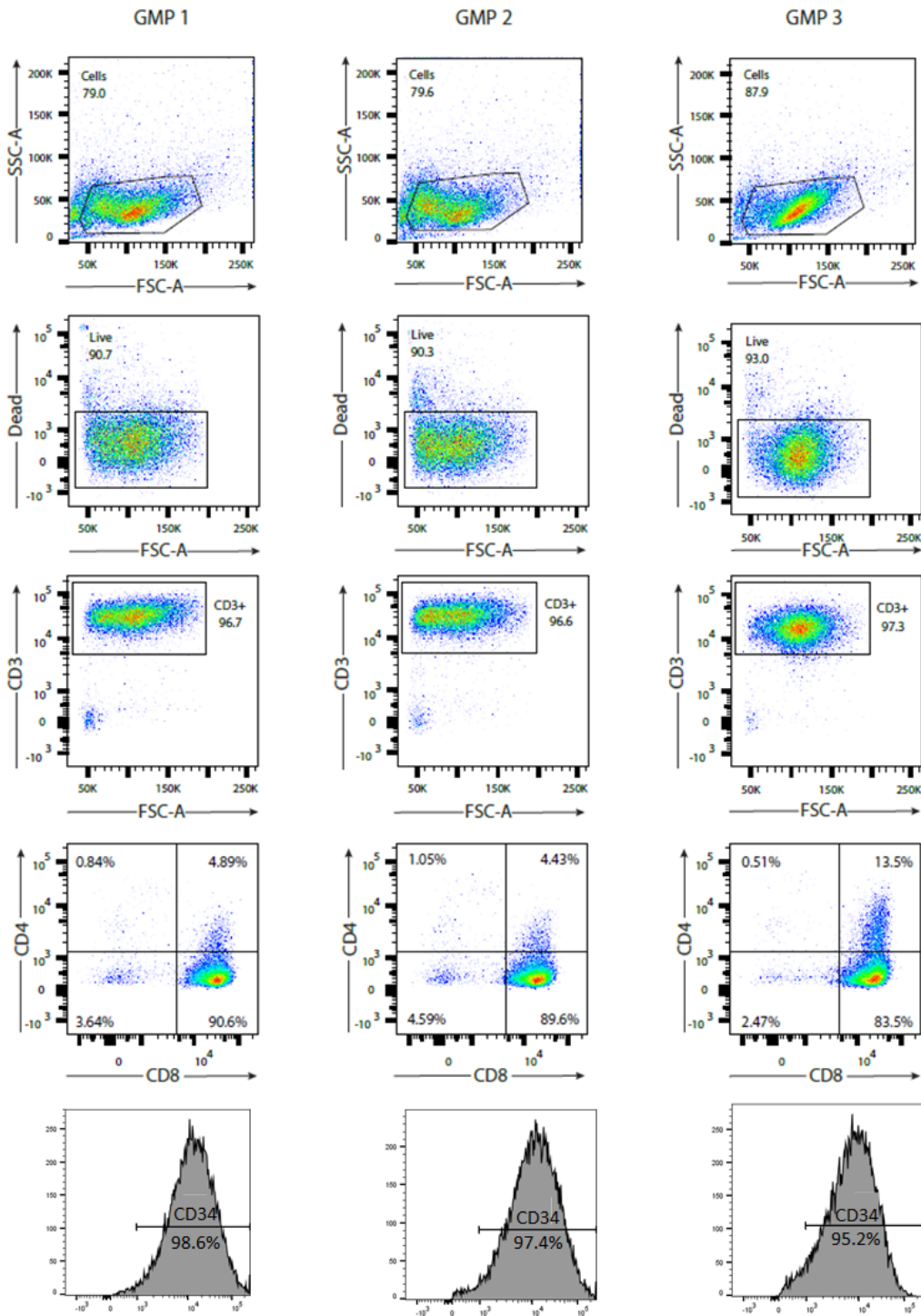
in the group treated with HERV-E T cells (n=7), in the group treated with untransduced T cells (n=7), and in the mice that did not receive T-cells (n=7; Not treated). **(C)** Kaplan-Meyer survival curves. * p<0.05

Supplementary item 3. Purity and viability of HERV-E TCR transduced T cells

manufactured using GMP conditions. HERV-E TCR-transduced T cell products were expanded using GMP conditions at full scale from three healthy donors (GMP 1-3) with cell number, viability, and purity (CD34 expression) assessed at multiple time points after thawing.

| | | Thawed sample | | | Method |
|----------------|-------|------------------------|-------------------------|------------------------|------------------|
| | | 0h | 2h | 4h | |
| Cell count | GMP 1 | 1.34 x 10 ⁸ | 1.32 x 10 ⁸ | 1.29 x 10 ⁸ | Cellometer-based |
| | GMP 2 | 7.55 x 10 ⁸ | 7.39 x 10 ⁸ | 6.54 x 10 ⁸ | |
| | GMP 3 | 6.34 x 10 ⁹ | 16.11 x 10 ⁹ | 5.82 x 10 ⁹ | |
| Viability (%)* | | 94.6 ± 2.5 | 94.3 ± 3.5 | 92 ± 3 | Trypan Blue |
| CD34+ (%)* | | 96.5 ± 0.4 | n/a | n/a | Flow Cytometry |
| Tetramer+ (%)* | | 92 ± 2.2 | n/a | n/a | Flow Cytometry |

* Data is represented as: Mean ± SD



Supplementary item 4. Scale-up using GMP conditions to manufacture clinical-grade HERV-E TCR T cells and characteristics of transduced cells. HERV-E T cell final products were manufactured from three healthy donors (GMP 1-3) using GMP conditions and characterized by flow cytometry.