CLAIMS

1. A T cell and at least one androgen receptor antagonist for use in treating a cancer comprising tumor cells in a subject, wherein the T cell comprises a polynucleotide encoding a chimeric antigen receptor (CAR) that binds an epitope on human six transmembrane epithelial antigen of prostate-2 (STEAP2), wherein the CAR comprises an antigen-binding domain comprising a VH and a VL, wherein the VH comprises a VH-CDR1, a VH-CDR2, a VH-CDR3, and wherein the VL comprises a VL-CDR1, a VL-CDR2, and VL-CDR3; and wherein the VL-CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 1, the VL-CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 2, the VL-CDR3 comprises the amino acid sequence set forth in SEQ ID NO: 3, the VH-CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 4, the VH-CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 5, and the VH-CDR3 comprises the amino acid sequence set forth in SEQ ID NO: 6.

2. The T cell and at least one androgen receptor antagonist for use according to claim 1, wherein the VH comprises an amino acid sequence having at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity to the amino acid sequence set forth in SEQ ID NO: 7, and the VL comprises an amino acid sequence having at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity to the amino acid sequence set forth in SEQ ID NO: 8.

3. The T cell and at least one androgen receptor antagonist for use according to claim 1 or 2, wherein the VH comprises the amino acid sequence set forth in SEQ ID NO: 7, and the VL comprises the amino acid sequence set forth in SEQ ID NO: 8.

4. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 3, wherein the polynucleotide further encodes an armoring molecule comprising a dominant-negative TGF-β receptor type 2 (TGFβRIIDN).

5. The T cell and at least one androgen receptor antagonist for use according to claim 4, wherein the armoring molecule comprises an amino acid sequence having at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least

97%, at least 98%, or at least 99% sequence identity to the amino acid sequence set forth in SEQ ID NO: 10.

6. The T cell and at least one androgen receptor antagonist for use according to claim 4 or 5, wherein the armoring molecule comprises the amino acid sequence set forth in SEQ ID NO: 10.

7. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 6, wherein the polynucleotide encoding the CAR comprises a nucleotide sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity to the nucleotide sequence set forth in SEQ ID NO: 11.

8. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 7, wherein the polynucleotide encoding the CAR comprises the nucleotide sequence set forth in SEQ ID NO: 11.

9. The T cell and at least one androgen receptor antagonist for use according to any one of claims 4 to 8, wherein the polynucleotide encoding the CAR comprises the nucleotide sequence set forth in SEQ ID NO: 11, and the polynucleotide encoding the armoring molecule comprises the nucleotide sequence set forth in SEQ ID NO: 9.

10. The T cell and at least one androgen receptor antagonist for use according to any one of claims 4 to 9, wherein the polynucleotide encoding the CAR and the polynucleotide encoding the armoring molecule are operably linked under the control of a single promoter.

11. The T cell and at least one androgen receptor antagonist for use according to claim 10, wherein the polynucleotide encoding the CAR and the polynucleotide encoding the armoring molecule are linked by a nucleotide sequence encoding a self-cleaving peptide linker.

12. The T cell and at least one androgen receptor antagonist for use according to claim 11, wherein the self-cleaving peptide linker comprises a T2A peptide comprising SEQ ID NO: 13.

13. The T cell and at least one androgen receptor antagonist for use according to any one of claims 4 to 12, wherein the polynucleotide comprises a nucleotide sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity to the nucleotide sequence set forth in SEQ ID NO: 14.

14. The T cell and at least one androgen receptor antagonist for use according to claim 13, wherein the polynucleotide comprises the nucleotide sequence set forth in SEQ ID NO: 14.

15. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 14, wherein the androgen receptor antagonist is enzalutamide, apalutamide, darolutamide, abiraterone, bicalutamide, nilutamide, flutamide, proxalutamide, or a combination thereof.

16. The T cell and at least one androgen receptor antagonist for use according to claim 15, wherein the androgen receptor antagonist is enzalutamide.

17. The T cell and at least one androgen receptor antagonist for use according to claim 15, wherein the androgen receptor antagonist is abiraterone.

18. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 17, wherein the treatment increases STEAP2 expression in the tumor cells by from 50% to 200% as compared with treatment with the T cell alone.

19. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 18, wherein the T cell comprises an amino acid sequence that comprises the amino acid sequence set forth in SEQ ID NO: 12.

20. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 19, wherein the T cell comprises an amino acid sequence that comprises the amino acid sequence set forth in SEQ ID NO: 15.

21. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 20, wherein the T cell is to be administered intravenously and/or wherein the androgen receptor antagonist is to be administered intravenously or orally.

22. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 21, wherein the T cell and the androgen receptor antagonist are to be administered sequentially or simultaneously, and in any order.

23. The T cell and at least one androgen receptor antagonist for use according to any one of claims 1 to 22, wherein the cancer is prostate cancer.

24. The T cell and at least one androgen receptor antagonist for use according to claim 23, wherein the prostate cancer is metastatic, recurrent, or relapsed.