CLAIMS

1. A T cell receptor (TCR) generated as a result of therapy with an HPV vaccine, wherein the HPV vaccine is selected from: an HPV quadrivalent recombinant vaccine; an HPV 9-valent recombinant vaccine; or an HPV bivalent recombinant vaccine.

2. The TCR of claim 1, wherein the HPV vaccine is an HPV bivalent recombinant vaccine.

3. The TCR of claim 2, wherein the HPV vaccine comprises a nucleic acid sequence having at least 80% sequence identity with SEQ ID NO: 81.

4. The TCR of claim 2, wherein the HPV vaccine comprises a nucleic acid sequence having at least 90% sequence identity with SEQ ID NO: 81.

5. The TCR of claim 2, wherein the HPV vaccine comprises a nucleic acid sequence having at least 95% sequence identity with SEQ ID NO: 81.

6. The TCR of claim 2, wherein the HPV vaccine comprises the nucleic acid sequence of SEQ ID NO: 81 or a codon degenerate variant thereof.

7. The TCR of claim 2, wherein the HPV vaccine comprises the nucleic acid sequence of SEQ ID NO: 81.

8.The TCR of claim 1, wherein the HPV vaccine is selected from the group consisting of: Gardasil; Gardasil 9; Cervavac; Cervarix; Cecolin; and Walrinvax.

9. The TCR of claim 1, wherein the TCR comprises an amino acid sequence having at least 80% sequence identity with any one of SEQ ID NOs: 1–80.

10. The TCR of claim 1, wherein the TCR comprises an amino acid sequence having at least 90% sequence identity with any one of SEQ ID NOs: 1–80.

11. The TCR of claim 1, wherein the TCR comprises an amino acid sequence having at least 95% sequence identity with any one of SEQ ID NOs: 1–80.

12. The TCR of claim 1, wherein the TCR comprises an amino acid sequence of any one of SEQ ID NOs: 1–80 or a conservatively-substituted variant thereof.

13. The TCR of claim 1, wherein the TCR comprises the amino acid sequence of any one of SEQ ID NOs: 1–80.

14. The TCR of claim 1, further comprising a modification that enhances the TCR's efficacy against HPV infection and/or specificity to an HPV.

15. The TCR of claim 1, wherein the TCR is linked to an effector molecule.

16. The TCR of claim 15, wherein the effector molecule is selected from the group consisting of: a cytokine, a toxin, a radioisotope, a chemotherapeutic agent, an antibody, an antibody fragment, and an antibody-drug conjugate.

17. A use of the TCR of any one of claims 1–16 in the preparation of a medicament for the treatment of a disease or disorder associated with HPV infection.

18. A method of preparing a TCR-T cell for use in treating a disease or disorder associated with HPV infection in a subject that has been administered an HPV vaccine, the method comprising isolating T cells from the subject, stimulating the T cells with HPV antigens, and isolating the HPV-specific TCR-T cells, wherein the HPV vaccine is selected from the group consisting of: an HPV quadrivalent recombinant vaccine; an HPV 9-valent recombinant vaccine; and an HPV bivalent recombinant vaccine.

19. An engineered or isolated cell comprising the TCR of any one of claims 1–16.

20. A nucleic acid molecule encoding the TCR of any one of claims 1–16.

21. A vector comprising the nucleic acid of claim 20.

22. A pharmaceutical composition comprising the engineered or isolated cell of claim 19 and a pharmaceutically acceptable excipient for use in the preparation of a medicament for use in treating a disease or disorder associated with HPV infection.

23. A method for producing an engineered cell expressing a TCR comprising introducing the nucleic acid of claim 20 to a cell.

24. A kit comprising the TCR of any one of claims 1–16, the engineered or isolated cell of claim 19, or the nucleic acid molecule of claim 20, and instructions for use in treating a disease or disorder associated with HPV infection.

25. The TCR of any one of claims 1–16 for use in treating a disease or disorder associated with HPV infection in a subject in need thereof, wherein the TCR is administered in combination with a therapy selected from the group consisting of: chemotherapy, radiation therapy, and checkpoint inhibitor therapy.

26. The nucleic acid of claim 20 for use in treating a disease or disorder associated with HPV infection in a subject in need thereof, wherein the nucleic acid is administered in combination with a therapy selected from the group consisting of: chemotherapy, radiation therapy, and checkpoint inhibitor therapy.

27. An *in vitro* method of detecting binding of a TCR to a biological sample obtained from a subject, the method comprising contacting the sample the TCR of any one of claims 1–16 and detecting binding of the TCR to the sample, wherein the presence of binding indicates the presence of HPV infection in the subject.