CLAIMS

1. Use of a pharmaceutical composition in the manufacture of a medicament for treating a patient having skin cancer, cancerous tumor, or cancerous lesion, wherein the medicament is to be administered to the patient, the pharmaceutical composition consisting of:

a human papillomavirus (HPV) vaccine selected from the group consisting of an HPV quadrivalent recombinant vaccine comprising HPV L1 proteins of types 6, 11, 16, and 18, and an HPV multivalent recombinant vaccine comprising HPV L1 proteins of HPV types 16, 18, 31, 33, 45, 52, and 58;

a second active pharmaceutical ingredient which is an immune-based therapeutic selected from an Immune Checkpoint Inhibitor and Chimeric Antigen Receptor (CAR) T-cells; and

a pharmaceutically acceptable carrier.

2. The use of claim 1 wherein the Immune Checkpoint Inhibitor is selected from the group consisting of a Programed Death 1 inhibitor, a Programed Death Ligand inhibitor, and a Cytotoxic T-lymphocyte-Associated Protein 4 inhibitor.

3. The use of claim 2 wherein the Programed Death 1 inhibitor or Programed Death Ligand inhibitor is Cemiplimab, Atezolizumab, Avelumab, Bavencio, Durvalumab, Imfinzi, Keytruda, Nivolumab, Opdivo, Pembrolizumab, or Tecentriq.

4. The use of claim 1 wherein the CAR T-cells are bispecific antibodies or monoclonal antibodies.

5. The use of claim 4 wherein the bispecific antibodies are Catumaxomab.

6. The use of claim 4 wherein the monoclonal antibodies are Campath, Brutuximab, Vismodigib, Vemurafenib, Dabrfenib, or ecorafenib.

7. The use of claim 1 wherein the vaccine is substantially free of host-cell early antigen, E6 or E7.

8. The use of claim 1 wherein the skin cancer, cancerous tumor, or cancerous lesion is substantially reduced in size or eliminated.

9. The use of claim 1 wherein the cancer or cancerous lesion is selected from the group consisting of squamous cell carcinoma, basal cell carcinoma, melanoma, glandular tumor, and adenoma.

10. The use of claim 1, wherein the patient is 27 years of age or older or is previously not immunized with an HPV vaccine.

11. The use of claim 1 wherein the use further comprises:

a positive diagnosis of skin cancer, diagnosis of benign or cancerous tumor, or diagnosis of HPV infection, to be established prior to the administration of the first dose of HPV vaccine.

12. The use of claim 1, said use comprising a dose of an HPV vaccine or immune-based therapeutic to be administered directly to a tumor or skin cancer lesion or an area immediately surrounding the tumor, or skin cancer lesion.

13. The use of claim 1 wherein the vaccine or immune-based therapeutic is to be administered by injection.

14. The use of claim 1 wherein the pharmaceutical composition is to be administered to the patient in a fixed-dose combination product.

15. The use of claim 1, wherein the patient is to be administered a second dose of vaccine and immune-based therapeutic at least one month following the first administration, and optionally is to be administered a third dose of vaccine and immune-based therapeutic at least one month following the second administration.

16. An anticancer pharmaceutical composition consisting of:

an HPV vaccine selected from the group consisting of an HPV quadrivalent recombinant vaccine comprising HPV L1 protein of HPV types 6, 11, 16, (and 18) and an HPV multivalent recombinant vaccine comprising HPV L1 proteins of HPV types 16, 18, 31, 33, 45, 52, and 58;

a second active pharmaceutical ingredient which is an immune-based therapeutic selected from an Immune Checkpoint Inhibitor and CAR T-cells; and

a pharmaceutically acceptable carrier.

17. The composition of claim 16 wherein the Immune Checkpoint Inhibitor is selected from the group consisting of a Programed Death 1 inhibitor, a Programed Death Ligand inhibitor, and a Cytotoxic T-lymphocyte-Associated Protein 4 inhibitor.

18. The composition of claim 17 wherein the Programed Death 1 inhibitor or Programed Death Ligand inhibitor is Cemiplimab, Atezolizumab, Avelumab, Bavencio, Durvalumab, Imfinzi, Keytruda, Nivolumab, Opdivo, Pembrolizumab, or Tecentriq.

19. The composition of claim 16 wherein the CAR T-cells are bispecific antibodies which is Catumaxomab or monoclonal antibodies Campath, Brutuximab, Vismodigib, Vemurafenib, Dabrfenib, or ecorafenib.