WHAT IS CLAIMED IS:

1. A pharmaceutical composition for use in preventing or treating cancer comprising, as active ingredients, a fusion protein dimer comprising an IL-2 protein or a variant thereof and a CD80 protein or a fragment thereof, and an immune checkpoint inhibitor.

2. The pharmaceutical composition for use in preventing or treating cancer according to claim 1, wherein the IL-2 protein or a variant thereof and the CD80 protein or a fragment thereof are attached via a linker.

3. The pharmaceutical composition for use in preventing or treating cancer according to claim 1, wherein the IL-2 protein has the amino acid sequence of SEQ ID NO: 10.

4. The pharmaceutical composition for use in preventing or treating cancer according to claim 1, wherein the CD80 has the amino acid sequence of SEQ ID NO: 11.

5. The pharmaceutical composition for use in preventing or treating cancer according to claim 1, wherein the fusion protein has the amino acid sequence of SEQ ID NO: 9.

6. The pharmaceutical composition for use in preventing or treating cancer according to claim 1, wherein the immune checkpoint inhibitor is any one selected from the group consisting of an anti-CTLA-4 antibody, an anti-PD-1 antibody, an anti-PD-L1 antibody, an anti-PD-L2 antibody, an anti-B7-H4 antibody, an anti-HVEM antibody, an anti-TIM3 antibody, an anti-GAL9 antibody, an anti-LAG3 antibody, an anti-VISTA antibody, an anti-KIR antibody, an anti-BTLA antibody and an anti-TIGIT antibody.

7. The pharmaceutical composition for use in preventing or treating cancer according to claim 6, wherein the anti-CTLA-4 antibody is any one selected from the group consisting of ipilimumab and tremelimumab;

the anti-PD-1 antibody is any one selected from the group consisting of pembrolizumab, nivolumab, cemiplimab, JTX-4014, spartalizumab, camrelizumab, sintilimab, tislelizumab, toripalimab, dostarlimab, INCMGA00012, AMP-224, and AMP-514;

the anti-PD-L1 antibody is any one selected from the group consisting of atezolizumab, avelumab, durvalumab, KN035, CK-301, AUNP12, CA-170, and BMS-986189;

the anti-TIM3 antibody is any one selected from the group consisting of LY3321367, MBG453, and TSR-022;

the anti-LAG3 antibody is any one selected from the group consisting of IMP321, relatlimab, and GSK2831781; or

the anti-VISTA antibody is JNJ-63723283.

8. The pharmaceutical composition for use in preventing or treating cancer according to claim 1, wherein the cancer is any one selected from the group consisting of gastric cancer, liver cancer, lung cancer, colorectal cancer, breast cancer, prostate cancer, ovarian cancer, pancreatic cancer, cervical cancer, thyroid cancer, larynx cancer, acute myeloid leukemia, brain tumor, neuroblastoma, retinoblastoma, head and neck cancer, salivary cancer, and lymphoma.

~~9. A method for preventing or treating cancer, comprising:~~

~~administering, to a subject having cancer, a fusion protein dimer comprising an IL-2 protein or a variant thereof and a CD80 protein or a fragment thereof, and an immune checkpoint inhibitor.~~

~~10~~9. A use of a fusion protein dimer comprising an IL-2 protein or a variant thereof and a CD80 protein or a fragment thereof, and an immune checkpoint inhibitor in the manufacture of a medicament for preventing or treating cancer.