CLAIMS

1. A recombinant vaccinia virus in which expression of only K3L, thymidine kinase (TK), and vaccinia growth factor (VGF) genes is suppressed.

2. The recombinant vaccinia virus of claim 1, wherein the expression of the genes is suppressed by partial or entire deletion of the genes, or the insertion of a foreign gene into the genes.

3. The recombinant vaccinia virus of any preceding claim, wherein the VGF gene is a polynucleotide consisting of the base sequence of SEQ ID NO: 66.

4. The recombinant vaccinia virus of any preceding claim, wherein the TK gene is a polynucleotide consisting of the base sequence of SEQ ID NO: 68.

5. The recombinant vaccinia virus of any preceding claim, wherein the K3L gene is a polynucleotide consisting of the base sequence of SEQ ID NO: 70.

6. The recombinant vaccinia virus of any preceding claim, wherein the vaccinia virus is any one selected from the group consisting of Western Reserve(WR), New York Vaccinia Virus (NYVAC), Wyeth (The New York City Board of Health), LC16m8, Lister, Copenhagen, Tian Tan, USSR, TashKent, Evans, International Health Division-J (IHD-J), International Health Division-White(IHD-W), and variants thereof.

7. The recombinant vaccinia virus of claim 6, wherein the vaccinia virus is IHD-W.

8. A pharmaceutical composition comprising the recombinant vaccinia virus of any preceding claim as an active ingredient.

9. The recombinant vaccinia virus of any of claims 1 to 7 for use in the prevention or treatment of cancer.

10. Use of the recombinant vaccinia virus of any of claims 1 to 7 in the manufacture of a pharmaceutical composition for preventing or treating cancer.

11. The recombinant vaccinia virus for use according to claim 9, or the use of the recombinant vaccinia virus according to claim 10, wherein the cancer is solid cancer or blood cancer.

12. The recombinant vaccinia virus for use according to claim 11, or the use of the recombinant vaccinia virus according to claim 11, wherein the solid cancer is any one selected from the group consisting of lung cancer, colorectal cancer, prostate cancer, thyroid cancer, breast cancer, brain cancer, head and neck cancer, esophageal cancer, skin cancer, thymic cancer, gastric cancer, colon cancer, liver cancer, ovarian cancer, uterine cancer, bladder cancer, rectal cancer, gallbladder cancer, biliary tract cancer, pancreatic cancer, and combinations thereof.

13. The recombinant vaccinia virus for use according to claim 11, or the use of the recombinant vaccinia virus according to claim 11, wherein the blood cancer is any one selected from the group consisting of lymphoma, acute leukemia, multiple myeloma, and combinations thereof.