WHAT IS CLAIMED IS:

Claim 1. An anticancer immunotherapeutic and preventive vaccine comprising peripheral blood mononuclear cells loaded with natural killer T cell ligands and cancer antigens,

wherein the peripheral blood mononuclear cells are composed of T cells, B cells, natural killer cells, and monocytes, and

wherein the natural killer T cell ligand is alpha-galactosylceramide.

Claim 2. The anticancer immunotherapeutic and preventive vaccine according to claim 1, wherein the peripheral blood mononuclear cells are obtained by removing red blood cells from peripheral blood.

Claim 3. The anticancer immunotherapeutic and preventive vaccine according to claim 1 or 2, wherein the cancer antigen is at least one selected from the group consisting of gp100, melanoma antigen gene (MAGE), human papilloma virus (HPV) E6/E7, tyrosinase, tyrosinase-related protein-1 (TRP-1), tyrosinase-related protein-2 (TRP-2), murinoglobulin 1 (MUC-1), carcinoembryonic antigen (CEA), p53, α-fetoprotein, breast cancer protein expressed by Her-2/neu, proteinase 3, WT-1, PAP, PSA, PSMA, G250, BAGE, GAGE, NY-ESO- 1, MART-1, MCIR, Ig Idiotype, CDK4, caspase-8, β-catenin, CIA, BCR/ABL, EBV LMP2a,

HCV, HHV-8, 5T4, and tumor-specific mutation-derived neoantigens.

Claim 4. The anticancer immunotherapeutic and preventive vaccine according to any one of claims 1 to 3, wherein the cancer antigen is in the form of a peptide, a lipopolysaccharide, a polysaccharide, a glycoprotein, or a polynucleotide including DNA and RNA.

Claim 5. The anticancer immunotherapeutic and preventive vaccine according to any one of claims 1 to 4, wherein the cancer is selected from the group consisting of liver cancer, thyroid cancer, testicular cancer, bone cancer, glioblastoma, oral cancer, ovarian cancer, brain tumor, multiple myeloma, gallbladder cancer, biliary tract cancer, colon cancer, head and neck cancer, lymphoma, bladder cancer, leukemia, esophageal cancer, kidney cancer, stomach cancer, breast cancer, cervical cancer, prostate cancer, rectal cancer, spinal cord tumor, pancreatic cancer, salivary gland cancer, lung cancer, skin cancer, laryngeal cancer, melanoma, acute myeloid leukemia, neuroblastoma, retinoblastoma, and colorectal cancer

Claim 6. The anticancer immunotherapeutic and preventive vaccine according to any one of claims 1 to 5, wherein the cancer antigen is introduced and expressed by a recombinant virus.

Claim 7. The anticancer immunotherapeutic and preventive vaccine according to claim 6, wherein the recombinant virus is adenovirus, retrovirus, vaccinia virus, Pox virus, or Sindbis virus with introduced genes expressing the cancer antigens.

Claim 8. A method of producing the anticancer immunotherapeutic and preventive vaccine of any one of claims 1 to 7, comprising the following steps:

(a) a step of obtaining peripheral blood mononuclear cells, wherein the peripheral blood mononuclear cells are composed of T cells, B cells, natural killer cells, and monocytes; and

(b) a step of delivering alpha-galactosylceramide and cancer antigens to peripheral blood mononuclear cells obtained in step (a).

Claim 9. A pharmaceutical comprising peripheral blood mononuclear cells loaded with natural killer T cell ligands and cancer antigens as an active ingredient,

wherein the peripheral blood mononuclear cells are composed of T cells, B cells and natural killer cells, and monocytes, and

wherein the natural killer T cell ligand is alpha-galactosylceramide.

Claim 10. Use of peripheral blood mononuclear cells loaded with natural killer T cell ligands and cancer antigens in the manufacture of a medicament for preventing or treating cancer,

wherein the peripheral blood mononuclear cells are composed of T cells, B cells, natural killer cells, and monocytes, and

wherein the natural killer T cell ligand is alpha-galactosylceramide.

Claim 11. Peripheral blood mononuclear cells loaded with natural killer T cell ligands and cancer antigens for use in therapy,

wherein the peripheral blood mononuclear cells are composed of T cells, B cells, natural killer cells, and monocytes, and

wherein the natural killer T cell ligand is alpha-galactosylceramide.