

WHAT IS CLAIMED IS:

1. An immunotherapeutic and preventive vaccine comprising natural killer cells loaded with ligands of natural killer T cells and cancer antigens,

wherein the ligand of natural killer T cell is selected from the group consisting of alpha-galactosylceramide, alpha-glucuronosylceramide, phosphatidylinositol tetramannoside, isoglobotrihexosylceramide, ganglioside GD3, phosphatidylcholine, beta-galactosylceramide, lipophosphoglycan, glycoinositol phospholipids, beta-anomericgalactosylceramide and alpha-anomericgalactosylceramide, which are analogues of alpha-galactosylceramide, bacterial lipid antigens, and derivatives of alpha-galactosylceramide;

wherein the cancer antigen is 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.

2. The immunotherapeutic and preventive vaccine according to claim 1,

wherein the cancer antigen is in the form of a peptide, lipopolysaccharide, polysaccharide, glycoprotein, or polynucleotide including DNA and RNA.

3. The immunotherapeutic and preventive vaccine according to claim 1,

wherein the antigen is introduced into the natural killer cells by a recombinant virus.

4. The immunotherapeutic and preventive vaccine according to claim 3,

wherein the recombinant virus is adenovirus, retrovirus, vaccinia virus, pox virus, or Sindbis virus into which a gene expressing the cancer antigen has been introduced.