

【CLAIMS】

【Claim 1】

An adenovirus system, comprising:

a gene encoding interleukin-12 (IL-12); and

a gene expressing an oligonucleotide that inhibits expression of C-met.

【Claim 2】

The adenovirus system according to claim 1, wherein the gene encoding interleukin-12 (IL-12) comprises an IL-12A (p35) gene sequence and an IL-12B (p40) gene sequence.

【Claim 3】

The adenovirus system according to claim 2, wherein the gene encoding interleukin-12 (IL-12) further comprises a linker sequence or internal ribosome entry site (IRES) sequence between the IL-12A (p35) gene sequence and the IL-12B (p40) gene sequence.

【Claim 4】

The adenovirus system according to claim 1, wherein the gene encoding interleukin-12 (IL-12) is inserted into an E1B or E3 region of adenovirus gene in the adenovirus system.

【Claim 5】

The adenovirus system according to claim 1, wherein the oligonucleotide

complementarily binds to the C-met gene to inhibit expression of C-met and is one or more selected from the group consisting of small hairpin RNA (shRNA), miRNA, siRNA, antisense oligonucleotides, ribozymes, DNAzyme, peptide nucleic acids (PNA), and guide RNA for CRISPR.

【Claim 6】

The adenovirus system according to claim 1, wherein the gene encoding the oligonucleotide inhibiting expression of C-met is inserted into an E1B or E3 region of adenovirus gene in the adenovirus system.

【Claim 7】

The adenovirus system according to claim 1, wherein the adenovirus system is a recombinant adenovirus, or a recombinant adenoviral DNA.

【Claim 8】

The adenovirus system according to claim 1, wherein, when the oligonucleotide complementarily binds to the C-met gene to inhibit expression of C-met and is a guide RNA for CRISPR, the adenovirus system further comprises a nucleotide sequence expressing Cas protein.

【Claim 9】

The adenovirus system according to claim 1, further comprising a biocompatible polymer in a form of being combined with the adenovirus system.

【Claim 10】

The adenovirus system according to claim 9, wherein the biocompatible polymer is selected from the group consisting of PEI-Arg-mPEG-S-S-mPEG-Arg-PEI (PAPS), mPEG-PEI-g-Arg-S-S-Arg-g-PEI-mPEG (PPSA), pegylated and iron oxide nanoparticles-crosslinked catechol-grafted poly L lysine (PICION), an arginine-grafted biodegradable polymer (ABP), a pegylated and PTX-conjugated polymeric micelle (APP), mPEG-b-Pip-CBA (PPCBA), PPCBA-PEI-Arginine (PPA), poly(amidoamine) dendrimer (PAMAM), polyethyleneglycol (PEG), poly-lactide (PLA), polyglycolide (PGA), poly-lactide-co-glycolide (PLGA), poly- ϵ -caprolactone (PCL), polyethyleneamine (PEI), hyaluronic acid (HA), gelatin, chitosan, and serum albumin.

【Claim 11】

An anticancer composition, comprising the adenovirus system according to any one of claims 1 to 10.

【Claim 12】

The anticancer composition according to claim 11 for the use in treatment of cancer, wherein the cancer is gastric cancer, lung cancer, non-small cell lung cancer, breast cancer,

ovarian cancer, liver cancer, bronchial cancer, nasopharyngeal cancer, laryngeal cancer, pancreatic cancer, bladder cancer, colorectal cancer, colon cancer, cervical cancer, bone cancer, non-small cell bone cancer, blood cancer, skin cancer (melanoma etc.), head or neck cancer, uterine cancer, rectal cancer, anal cancer, colon cancer, fallopian tube cancer, endometrial cancer, vaginal cancer, vulvar cancer, Hodgkin's disease, esophageal cancer, small intestine cancer, endocrine cancer, thyroid cancer, parathyroid cancer , adrenal cancer, soft tissue sarcoma, urethral cancer, penile cancer, prostate cancer, chronic or acute leukemia, lymphocytic lymphoma, kidney or ureter cancer, renal cell carcinoma, renal pelvic carcinoma, polyploid carcinoma, salivary gland cancer, sarcoma cancer, pseudomyxoma, hepatoblastoma, testicular cancer, glioblastoma, cleft lip cancer, ovarian germ cell tumor, basal cell carcinoma, multiple myeloma, gallbladder cancer, choroidal melanoma, ampulla of vater cancer, peritoneal cancer, adrenal cancer, tongue cancer, small cell cancer, pediatric lymphoma, nerve blastoma, duodenal cancer, ureteral cancer, astrocytoma, meningioma, renal carcinoma, vulvar cancer, thymus cancer, central nervous system (CNS) tumor, primary central nervous system lymphoma, spinal cord tumor, brain stem glioma, or pituitary adenoma.

【Claim 13】

The anticancer composition according to claim 11, wherein the composition is formulated to be intratumorally administered.

【Claim 14】

A composition for use in enhancing antitumor immunity, comprising the adenovirus system according to any one of claims 1 to 10.

【Claim 15】

The composition for use according to claim 14, wherein the composition is to be intratumorally administered.