

CLAIMS

1. A recombinant adenovirus, which comprises:
a replication cassette comprising Aa polynucleotide, which comprises human telomerase reverse transcriptase promoter, E1A gene, IRES sequence and E1B gene in this order and which comprises a target sequence of a first microRNA, wherein the replication cassette is integrated into the E1 region of the adenovirus genome and wherein the first microRNA is expressed in blood cells;
a labeling cassette comprising a reporter gene, a promoter capable of regulating the expression of the gene and a target sequence of a second microRNA, wherein the labeling cassette is integrated into the E3 region of the adenovirus genome and wherein the second microRNA is expressed in blood cells; and
a gene encoding a CD46-binding fiber protein.
- ~~2. The polynucleotide according to claim 1, wherein the first microRNA is expressed in non-cancer cells.~~
- ~~3. The recombinant adenovirus polynucleotide according to claim 1 or 2, wherein the first microRNA is at least one selected from the group consisting of miR-142, miR-15, miR-16, miR-21, miR-126, miR-181, miR-223, and miR-296, miR-125, miR-143, miR-145, miR-199 and let-7.~~
- ~~4. A recombinant adenovirus, which comprises a replication cassette comprising the polynucleotide according to any one of claims 1 to 3, wherein the replication cassette is integrated into the E1 region of the adenovirus genome.~~
- ~~5. The recombinant adenovirus according to claim 4, which further comprises a labeling cassette comprising a reporter gene and a promoter capable of regulating the expression of the gene, wherein the labeling cassette is integrated into the E3 region of the adenovirus genome.~~
- ~~6. The recombinant adenovirus according to claim 5, wherein the labeling cassette further comprises a target sequence of a second microRNA.~~
- ~~7. The recombinant adenovirus according to claim 4, wherein a cell death-inducing cassette comprising a gene encoding a cell death induction-related protein and a promoter capable of regulating the expression of the gene is further integrated into the E3 region of the adenovirus genome.~~
- ~~8. The recombinant adenovirus according to claim 7, wherein the cell death-inducing cassette further comprises a target sequence of a second microRNA.~~

~~9. The recombinant adenovirus according to claim 6 or 8, wherein the second microRNA is expressed in non-cancer cells.~~

~~403.~~ The recombinant adenovirus according to claim ~~9~~ 1 or 2, wherein the second microRNA is at least one selected from the group consisting of miR-142, miR-15, miR-16, miR-21, miR-126, miR-181, miR-223, and miR-296, ~~miR-125, miR-143, miR-145, miR-199 and let-7.~~

~~414.~~ The recombinant adenovirus according to any preceding claim ~~5 or 6~~, wherein the reporter gene is a gene encoding a protein which emits fluorescence or a gene encoding an enzyme protein which generates a luminophore or a chromophore upon enzymatic reaction.

~~425.~~ The recombinant adenovirus according to any one of preceding claims 5 to 10, wherein the promoter is human telomerase reverse transcriptase promoter or cytomegalovirus promoter.

~~43.~~ ~~The recombinant adenovirus according to any one of claims 4 to 12, which further comprises a gene encoding a CD46-binding fiber protein.~~

~~446.~~ The recombinant adenovirus according to any preceding claim ~~13~~, wherein the CD46-binding fiber protein comprises at least the fiber knob region in the fiber protein of adenovirus type 34 or 35.

~~457.~~ A reagent for cancer cell detection, which comprises the recombinant adenovirus according to any one of preceding claims 4 to 14.

~~46.~~ ~~A reagent for cancer diagnosis, which comprises the recombinant adenovirus according to any one of claims 4 to 14.~~

~~478.~~ The reagent according to claim ~~457~~, wherein the cancer cells are derived from a biological sample taken from a subject.

~~489.~~ The reagent according to claim ~~478~~, wherein the biological sample is blood.

~~4910.~~ The reagent according to claim ~~457~~ or ~~489~~, wherein the cancer cells are circulating tumor cells.

~~2011.~~ The reagent according to any one of claims ~~457 and 17~~ to ~~4910~~, wherein the cancer cells are drug-resistant cancer cells.

2112. The reagent according to any one of claims ~~15 and 177~~ to 2011, wherein the cancer cells are cancer stem cells.

2213. The reagent according to any one of claims ~~15 and 177~~ to 2112, wherein the cancer cells are cancer cells having undergone epithelial-mesenchymal transition or mesenchymal-epithelial transition.

14. A reagent for cancer diagnosis, which comprises the recombinant adenovirus according to any one of claims 1 to 6.

2315. An ex vivo method for cancer cell detection, which comprises contacting cancer cells with the recombinant adenovirus according to claim ~~14~~ and detecting the fluorescence or color produced by the cancer cells.

2416. The method according to claim ~~23~~15, wherein the cancer cells are derived from a biological sample taken from a subject.

2517. The method according to claim 2416, wherein the biological sample is blood.

2618. The method according to claim ~~25~~17, wherein the cancer cells are circulating tumor cells.

19. Use of a recombinant adenovirus according to claim 4 in the preparation of a composition for cancer cell detection, wherein the cancer cell detection comprises detecting fluorescence or colour produced by cancer cells.

20. The use according to claim 19, wherein the cancer cells are derived from a biological sample taken from a subject.

21. The use according to claim 20, wherein the biological sample is blood.

22. The use according to claim 21, wherein the cancer cells are circulating tumor cells.