Description

Title of Invention: A combination therapy using REIC/Dkk-3 gene and a checkpoint inhibitor

Technical Field

[0001] The present invention relates to a combination therapy for treatment of cancer using REIC/Dkk-3 gene and a checkpoint inhibitor.

Background

[0002] REIC/Dkk-3 gene is known to be a gene relating to cell immortalization. It has been reported that the expression of this gene is suppressed in cancer cells. It has also been reported that the REIC/Dkk-3 gene has been used for cancer therapy (Patent Document 1).

[0003] A check point inhibitor such as anti-PD-1 (Programmed cell death 1) antibody, anti-PD-L1 (Programmed cell-death ligand 1), and the like are known to be useful for various malignant tumors.

Citation List

Patent Literature

[0004] PTL 1: International Patent Publication WO01/038528

Summary

Technical Problem

[0005] An object of the present disclosure is to provide a method of treating cancer using a checkpoint inhibitor in combination with REIC/Dkk-3 gene.

Solution to Problem

[0006] The present inventors have examined the effect of the combination use of REIC/Dkk-3 and a checkpoint inhibitor for the treatment of cancers.

[0007] The present inventors found that the combination use of REIC/Dkk-3 and a checkpoint inhibitor enhances a systemic T cell response and anti-tumor responses. It indicates that the combination use of REIC/Dkk-3 and a checkpoint inhibitor is useful method for treating cancer.

[0007a] In one aspect, the present disclosure refers to a combination pharmaceutical kit for treating cancer comprising REIC/Dkk-3 gene in combination with an anti-PD1 antibody.

[0007b] In another aspect, the present disclosure refers to the use of a REIC/Dkk-3 gene in the manufacture of a medicament for use in combinatorial therapy for treating cancer, wherein said medicament is to be administered in

combination with an anti-PD-1 antibody. In another aspect, the present disclosure refers to the use of an adenovirus vector comprising a REIC/Dkk-3 gene in the manufacture of a medicament for use in combinatorial therapy for treating cancer, wherein said medicament is to be administered in combination with an anti-PD-1 antibody.

[0007c] In yet another aspect, the present disclosure refers to the use of a REIC/Dkk-3 gene and an anti-PD-1 antibody in the manufacture of a medicament for combinatorial therapy to treat cancer. In another aspect, the present disclosure refers to the use of an adenovirus vector comprising a REIC/Dkk-3 gene and an anti-PD-1 antibody in the manufacture of a medicament for combinatorial therapy to treat cancer.

[0008] Specifically, the present disclosure is as follows.

[0009] {1} A combination pharmaceutical kit for treating cancer comprising REIC/Dkk-3 in combination with a check point inhibitor.

{2} The combination pharmaceutical kit of {1}, wherein the check point inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody.

{3} The combination pharmaceutical kit of {1}, wherein an adenovirus vector comprising REIC/Dkk-3 gene is comprised.

CLAIMS

1. A combination pharmaceutical kit for treating cancer comprising REIC/Dkk-3 gene in combination with an anti-PD1 antibody.

2. The combination pharmaceutical kit of claim 1, wherein an adenovirus vector comprising REIC/Dkk-3 gene is comprised.

3. The combination pharmaceutical kit of claim 1, wherein the cancer is a prostate cancer.

4. Use of a REIC/Dkk-3 gene in the manufacture of a medicament for use in combinatorial therapy for treating cancer, wherein said medicament is to be administered in combination with an anti-PD-1 antibody.

5. The use of claim 4, wherein the cancer is a prostate cancer.

6. Use of an adenovirus vector comprising a REIC/Dkk-3 gene in the manufacture of a medicament for use in combinatorial therapy for treating cancer, wherein said medicament is to be administered in combination with an anti-PD-1 antibody.

7. The use of claim 6, wherein the cancer is a prostate cancer.

8. Use of a REIC/Dkk-3 gene and an anti-PD-1 antibody in the manufacture of a medicament for combinatorial therapy to treat cancer.

9. The use of claim 8, wherein the cancer is a prostate cancer.

10. Use of an adenovirus vector comprising a REIC/Dkk-3 gene and an anti-PD-1 antibody in the manufacture of a medicament for combinatorial therapy to treat cancer.

11. The use of claim 10, wherein the cancer is a prostate cancer.