[CLAIMS]

1. Use of a substance whose active ingredient is able to inhibit an immune checkpoint, in the manufacture of a medicament to suppress the progression of, and/or treat a malignant tumor, characterized in that the medicament is to be administered to a patient with the malignant tumor in which a ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament to the PD-1 expression intensity in Treg cells in the same tumor tissue is 0.7 or more,
wherein the substance whose active ingredient is able to inhibit an immune checkpoint is an anti-PD-1 antibody or anti-PD-L1 antibody.

2. The use according to Claim 1, wherein the ratio described in Claim 1 is:
a) 1.2 or more; or
b) 1.5 or more.

3. Use of a substance whose active ingredient is able to inhibit an immune checkpoint, in the manufacture of a medicament to suppress the progression of and/or treat a malignant tumor, characterized in that the medicament is to be administered to a patient with the malignant tumor, in which either of:

(a1) a ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament to the PD-1 expression intensity in Treg cells in the same tumor tissue, and

(a2) a ratio of the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells to the percentage (%) of the number of PD-1-expressing cells among the same Treg cells,

is 0.8 or more, and

(b) the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells is either:

i) 35% or more; or

ii) 40% or more,

wherein the substance whose active ingredient is able to inhibit the immune checkpoint is an anti-PD-1 antibody or anti-PD-L1 antibody.

4. The use according to Claim 3, wherein the ratio described in the preceding (a1) or (a2) in Claim 3 is:
i) 0.9 or more;
ii) 1.0 or more; or
iii) 1.1 or more.

5. Use of a substance whose active ingredient is able to inhibit an immune checkpoint, in the manufacture of a medicament to suppress the progression of and/or treat a malignant tumor, characterized in that the medicament is to be administered to a patient with the malignant tumor, in which the numerical value calculated:
a) by multiplying the ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament to the PD-1 expression intensity in Treg cells in the same tumor tissue by the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells ; or
b) by dividing the square of the percentage (%) of the number of PD-1-expressing cells among $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament by the percentage (%) of the number of PD-1-expressing cells among Treg cells in the same tissue;
is 25 or more,
wherein the substance whose active ingredient is able to inhibit the immune checkpoint is an anti-PD-1 antibody or anti-PD-L1 antibody.

6. The use according to Claim 5, wherein the numerical value described in Claim 5 is 60 or more.

7. The use according to any one of Claims 1 to 6, wherein Treg cells are Treg cells (Fr. II).

8. Use of a substance whose active ingredient is able to inhibit an immune checkpoint, in the manufacture of a medicament to suppress the progression of and/or treat a malignant tumor, characterized in that the medicament is to be administered to a patient with the malignant

tumor in which a ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament to the PD-1 expression intensity in Treg cells (Fr. II) in the same tumor tissue is 1.0 or more,
wherein the substance whose active ingredient is able to inhibit the immune checkpoint is an anti-PD-1 antibody or anti-PD-L1 antibody.

9. Use of a substance whose active ingredient is able to inhibit an immune checkpoint, in the manufacture of a medicament to suppress the progression of and/or treat a malignant tumor t, characterized in that the medicament is to be administered to a patient with the malignant tumor, in which either of:

(a1) a ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament to the PD-1 expression intensity in Treg cells (Fr. II) in the same tumor tissue and

(a2) a ratio of the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells to the percentage (%) of the number of PD-1-expressing cells among the same Treg cells (Fr. II), is 1.0 or more, and

(b) the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells is 40% or more
wherein the substance whose active ingredient is able to inhibit the immune checkpoint is an anti-PD-1 antibody or anti-PD-L1 antibody or anti-PD-L1 antibody.

10. Use of a substance whose active ingredient is able to inhibit an immune checkpoint, in the manufacture of a medicament to suppress the progression of and/or treat a malignant tumor, characterized in that the medicament is to be administered to a patient with the malignant tumor, in which the numerical value calculated:
a) by multiplying the ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament to the PD-1 expression intensity in Treg cells (Fr. II) in the same tumor tissue by the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells; or
b) by dividing the square of the percentage (%) of the number of PD-1-expressing cells among $CD8^+$ T cells in tumor tissue from the patient with the malignant tumor prior to administration of the medicament by the percentage (%) of the number of PD-1-expressing cells among Treg

cells (Fr. II) in the same tissue;
is 60 or more,
wherein the substance whose active ingredient is able to inhibit the immune checkpoint is an anti-PD-1 antibody or anti-PD-L1 antibody.

11. The use according to any one of Claims 1 to 10, wherein the anti-PD-1 antibody is Nivolumab, Cemiplimab, Pembrolizumab, Spartalizumab, Tislelizumab, AMP-514, Dostarlimab, Toripalimab, Camrelizumab, Genolimzumab, Sintilimab, STI-A1110, ENUM 388D4, ENUM 244C8, GLS010, MGA012, AGEN2034, CS1003, HLX10, BAT-1306, AK105, AK103, BI754091, LZM009, CMAB819, Sym021, GB226, SSI-361, JY034, HX008, ISU106, ABBV181, BCD-100, PF-06801591, CX-188 or JNJ-63723283.

12. The use according to any one of Claims 1 to 10, wherein the anti-PD-L1 antibody is Atezolizumab, Avelumab, Durvalumab, BMS-936559, STI-1014, KN035, LY3300054, HLX20, SHR-1316, CS1001, MSB2311, BGB-A333, KL-A167, CK-301, AK106, AK104, ZKAB001, FAZ053, CBT-502, JS003 or CX-072 or wherein the anti-CTLA-4 antibody is Ipilimumab, AGEN1884 or Tremelimumab.

13. The use according to any one of Claims 1 to 12, wherein the malignant tumor is solid cancer or blood cancer.

14. The use according to Claim 13, wherein the solid cancer is one or more cancers selected from the group consisting of malignant melanoma, non-small cell lung cancer, small cell lung cancer, head and neck cancer, renal cell carcinoma, clear cell renal cell carcinoma, breast cancer, ovarian cancer, serous ovarian cancer, clear cell carcinoma of the ovary, nasopharyngeal cancer, uterine cancer, anal cancer, colorectal cancer, rectum cancer, colon cancer, hepatocellular carcinoma, esophageal cancer, esophageal adenocarcinoma, gastric cancer, esophagogastric junction cancer, small intestine cancer, pancreatic cancer, urothelial cancer, prostate cancer, fallopian tube cancer, primary peritoneal cancer, malignant pleural mesothelioma, gallbladder cancer, bile duct cancer, biliary tract cancer, skin cancer, testicular cancer, vaginal cancer, vulvar cancer, penile cancer, small intestine cancer, endocrine cancer, thyroid cancer, parathyroid cancer, adrenal cancer, spinal tumor, brain tumor, squamous cell

carcinoma, bone/soft tissue sarcomas and Kaposi's sarcoma.

15. The use according to any one of Claims 1 to 14, wherein the patient with the malignant tumor has not been treated with any other anti-neoplastic agents.

16. The use according to any one of Claims 1 to 15, wherein the ratio of PD-L1-expressing tumor cells among tumor cells in tumor tissue or the value obtained by dividing the number of PD-L1 positive cells by the total number of tumor cells and multiplying by 100 is less than 50%, less than 25%, less than 10%, less than 5% or less than 1%.

17. The use according to any one of Claims 1 to 16, wherein the malignant tumor does not have high frequency microsatellite instability and/or mismatch repair deficient.

18. The use according to any one of Claims 1 to 17, wherein TMB in the malignant tumor is low frequency.

19. A method for identifying a patient with malignant tumor on which the effect of an immune checkpoint inhibitor can be more expected, based on the following ratio obtained by collecting a cell population containing Treg cells and $CD8^+$ T cells from tumor tissue of a patient with malignant tumor prior to administration of the immune checkpoint inhibitor, purifying the cell population if necessary, measuring the PD-1 expression intensity in the same Treg cells and $CD8^+$ T cells, respectively, using flow cytometry, multiple immunohistochemical staining, in situ hybridization, mass cytometry, single cell RNA sequencing, or mass imaging, and determining the ratio of the PD-1 expression intensity in the same $CD8^+$ T cells to the PD-1 expression intensity in the same Treg cells, wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody, wherein the ratio in a patient on which the effect of the immune checkpoint inhibitor can be more expected is:

a) 0.7 or more;

b) 1.0 or more;

c) 1.2 or more; or

d) 1.5 or more.

20. A method for identifying a patient with malignant tumor on which the effect of an immune checkpoint inhibitor can be more expected, based on combination of the ratio in the following (a1) or (a2) and the percentage in the following (b), obtained by:

(i) collecting a cell population containing $CD8^+$ T cells and Treg cells from tumor tissue of a patient with malignant tumor prior to administration of the immune checkpoint inhibitor, and purifying the cell population if necessary;

(ii) measuring (iia) the respective PD-1 expression intensities in the same $CD8^+$ T cells and Treg cells or (iib) the respective numbers of the same $CD8^+$ T cells and Treg cells and the respective numbers of PD-1 expressing cells among them, using flow cytometry, immunostaining, multiplex immunohistochemical staining, in situ hybridization, mass cytometry, single-cell RNA sequencing or mass imaging; and

(iii) determining (a1) a ratio of the PD-1 expression intensity in the same $CD8^+$ T cells to the PD-1 expression intensity in Treg cells, or (a2) a ratio of the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells to the percentage (%) of the number of PD-1-expressing cells among the same Treg cells, and

(b) the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells,

wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody, wherein in a patient on which the effect of the immune checkpoint inhibitor can be more expected, the ratio in (a1) or (a2) is 0.8 or more, and the percentage in (b) is 35% or more.

21. The method according to Claim 20, wherein the ratio described in (a1) or (a2) of Claim 20 is:

a) 0.9 or more;

b) 1.0 or more; or

c)1.1 or more.

22. The method according to Claim 20 or Claim 21, wherein the percentage in (b) of Claim 20 is 40% or more.

23. The method according to Claim 20, wherein the ratio in (a1) or (a2) of Claim 20 is 1.0 or more, and the percentage in (b) of the same claim is 40% or more.

24. A method for identifying a patient with malignant tumor on which the effect of an immune checkpoint inhibitor can be more expected, based on the following numerical value obtained by:

(i) collecting a cell population containing $CD8^+$ T cells and Treg cells from tumor tissue of a patient with malignant tumor prior to administration of the immune checkpoint inhibitor, and purifying the cell population if necessary;

(ii) measuring the respective PD-1 expression intensities in the same $CD8^+$ T cells and Treg cells and the number of the same $CD8^+$ T cells and the number of PD-1 expressing cells among them, using flow cytometry, immunostaining, multiplex immunohistochemical staining, in situ hybridization, mass cytometry, single-cell RNA sequencing or mass imaging; and

(iii) determining the numerical value calculated by multiplying the ratio of the PD-1 expression intensity in the same $CD8^+$ T cells to the PD-1 expression intensity in the same Treg cells by the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells,

wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody,

wherein the numerical value is 60 or more.

25. A method for identifying a patient with malignant tumor on which the effect of an immune checkpoint inhibitor can be more expected, based on the following numerical value obtained by:

(i) collecting a cell population containing $CD8^+$ T cells and Treg cells from tumor tissue of a patient with malignant tumor prior to administration of the immune checkpoint inhibitor, and purifying the cell population if necessary;

(ii) measuring the respective number of the same $CD8^+$ T cells and Treg cells and the respective numbers of PD-1 expressing cells among them, using flow cytometry, or immunostaining; and

(iii) determining the numerical value calculated by dividing the square of the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells by the percentage (%) of the number of PD-1-expressing cells among the same Treg cells,

wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody,

wherein the numerical value is 60 or more.

26. The method according to any one of Claims 19 to 25, wherein Treg cells are Treg cells (Fr. II).

27. Use of a ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from a patient with a malignant tumor prior to administration of an immune checkpoint inhibitor to the PD-1 expression intensity in Treg cells in the same tumor tissue, as a biomarker for predicting the effectiveness in suppressing the progression of, and/or treating malignant tumor with the immune checkpoint inhibitor,
wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody.

28. Use of a combination of:

(a1) a ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from a patient with a malignant tumor prior to administration of an immune checkpoint inhibitor to the PD-1 expression intensity in Treg cells in the same tumor tissue, or

(a2) a ratio of the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells to the percentage (%) of the number of PD-1 expressing cells among the same Treg cells; and

(b) the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells,

as a biomarker for predicting the effectiveness in suppressing the progression of, and/or treating malignant tumor with the immune checkpoint inhibitor, wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody.

29. Use of the numerical value calculated by multiplying the ratio of the PD-1 expression intensity in $CD8^+$ T cells in tumor tissue from a patient with a malignant tumor prior to administration of an immune checkpoint inhibitor to the PD-1 expression intensity in Treg cells in the same tumor tissue by the percentage (%) of the number of PD-1-expressing cells among the same $CD8^+$ T cells, as a biomarker for predicting the effectiveness in suppressing the progression of and/or treating malignant tumor with the immune checkpoint inhibitor, wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody.

30. Use of the numerical value calculated by dividing the square of the percentage (%) of the number of PD-1-expressing cells among $CD8^+$ T cells in tumor tissue from a patient with a malignant tumor prior to administration of an immune checkpoint inhibitor by the percentage (%) of the number of PD-1-expressing cells among Treg cells in the same tissue, as a biomarker for predicting the effectiveness in suppressing the progression of and/or treating malignant tumor with the immune checkpoint inhibitor, wherein the immune checkpoint inhibitor is an anti-PD-1 antibody or anti-PD-L1 antibody.

31. The use according to any one of Claims 27 to 30, wherein Treg cells are Treg cells (Fr. II).