CLAIMS

1. Use of a TLR7 agonist in manufacture of a medicament for inducing effector memory T cell, wherein the TLR7 agonist is used with an immune checkpoint inhibitor.

2. Use of a TLR7 agonist in manufacture of a medicament for inducing MHC class I, wherein the TLR7 agonist is used with an immune checkpoint inhibitor.

3. The use according to claim 1 or 2, wherein the medicament is for treating a cancer or an infection.

4. The use according to claim 1 or 2, wherein the medicament is for treating a cancer.

5. The use according to claim 3 or 4, wherein the cancer is selected from the group consisting of non-small-cell lung cancer; small cell lung cancer; pancreatic cancer; malignant melanoma; renal cell carcinoma; gastric cancer; colon cancer; rectal cancer; small intestinal cancer; breast cancer; germ cell cancer; bladder cancer; prostate cancer; endometrial cancer; cervical cancer; ovarian cancer; liver cancer; Merkel cell carcinoma; bone cancer; head and neck cancer; cutaneous or intraorbital malignant melanoma; anal cancer; testicular cancer; esophageal

cancer; endocrine system cancer; thyroid cancer; parathyroid cancer; adrenal cancer; soft tissue sarcoma; urothelial cancer; penile cancer; glioblastoma multiforme; brain tumor; chronic or acute leukemia including acute myeloid leukemia, chronic myeloid leukemia, acute lymphoblastic leukemia, and chronic lymphocytic leukemia; malignant lymphoma including Hodgkin's lymphoma and non-Hodgkin's lymphoma; myelodysplastic syndrome; and multiple myeloma.

6. The use according to any one of claims 1 to 5, wherein the medicament is to be administered to a patient having refractoriness to the immune checkpoint inhibitor.

7. The use according to any one of claims 1 to 6, wherein the medicament is to be administered to a patient who has relapsed with cancer.

8. The use according to any one of claims 1 to 7, wherein the medicament has a long-term anticancer immunity.

9. The use according to any one of claims 1 to 8, wherein the TLR7 agonist is imiquimod, loxoribine, or any one of the following compounds:

N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine;

N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2-difluoroethyl)glycine;

6-amino-2-(butylamino)-9-({6-[2-(dimethylamino)ethoxy]pyridin-3-yl}methyl)-7,9-dihydro-8H-purin-8-one;

6-amino-9-({6-[2-(dimethylamino)ethoxy]pyridin-3-yl}methyl)-2-ethoxy-7,9-dihydro-8H-purin-8-one; and

N-(4-{[6-amino-2-(butylamino)-8-oxo-7,8-dihydro-9H-purin-9-yl]methyl}benzoyl)glycine; or

a pharmaceutically acceptable salt thereof.

10. The use according to claim 9, wherein the TLR7 agonist is any one of the following compounds:

N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine;

N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2-difluoroethyl)glycine;

6-amino-2-(butylamino)-9-({6-[2-(dimethylamino)ethoxy]pyridin-3-yl}methyl)-7,9-dihydro-8H-purin-8-one; and

6-amino-9-({6-[2-(dimethylamino)ethoxy]pyridin-3-yl}methyl)-2-ethoxy-7,9-dihydro-8H-purin-8-one, or a pharmaceutically acceptable salt thereof.

11. The use according to claim 10, wherein the TLR7 agonist is N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine, N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2-difluoroethyl)glycine, or a pharmaceutically acceptable salt thereof.

12. The use according to claim 10, wherein the TLR7 agonist is N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine, or a pharmaceutically acceptable salt thereof.

13. The use according to any one of claims 1 to 11, wherein the immune checkpoint inhibitor is at least one medicament that can inhibit the function of a molecular which is selected from the group consisting of

(1) CTLA-4,

(2) PD-1,

(3) LAG-3,

(4) BTLA,

(5) KIR,

(6) TIM-3,

(7) PD-L1,

(8) PD-L2,

(9) B7-H3,

(10) B7-H4,

(11) HVEM,

(12) GAL9,

(13) CD160,

(14) VISTA,

(15) BTNL2,

(16) TIGIT,

(17) PVR,

(18) BTN1A1,

(19) BTN2A2,

(20) BTN3A2, and

(21) CSF-1R.

14. The use according to claim 13, wherein the immune checkpoint inhibitor is at least one medicament that can inhibit the function of a molecular which is selected from the group consisting of CTLA-4, PD-1, LAG-3, TIM-3, BTLA, VISTA, HVEM, TIGIT, PVR, PD-L1, and CD160.

15. The use according to claim 14, wherein the immune checkpoint inhibitor is a medicament which can inhibit the function of a molecular of PD-1 or PD-L1.

16. The use according to any one of claims 13 to 15, wherein the immune checkpoint inhibitor is an antibody against the molecular.

17. The use according to claim 16, wherein the immune checkpoint inhibitor is anti-PD-1 antibody, anti-PD-L1 antibody, or anti-CTLA-4 antibody.

18. The agent of claim 16, wherein the immune checkpoint inhibitor is anti-PD-1 antibody or anti-PD-L1 antibody.

19. The use according to claim 16, wherein the immune checkpoint inhibitor is anti-PD-1 antibody.

20. The use according to claim 16, wherein the immune checkpoint inhibitor is anti-CTLA-4 antibody.

21. The use according to claim 17 or 18, wherein the anti-PD-1 antibody is nivolumab, pembrolizumab, cemiplimab, tislelizumab, dostarlimab, spartalizumab, camrelizumab, genolimzumab, sintilimab, JNJ-3283, BI-754091, INCMGA-00012,

ABBV-181, CC-90006, AGEN-2034w, GSL-010, LZM-009, Sym-021, AB-122, AK-105, CS-1003, HLX-10, or BCD-100.

22. The use according to claim 17 or 18, wherein the anti-PD-L1 antibody is durvalumab, atezolizumab, avelumab, STI-1014, CK-301, BMS-986189, LY-3300054, CX-072, CBT-502, FAZ-053, FS-118, HTI-1088, MSB-2311, BGB-A333, IMC-001, HLX-20, A-167, or BMS-936559.

23. The use according to claim 17 or 20, wherein the anti-CTLA-4 antibody is ipilimumab, tremelimumab, BMS-986218, MK-1308, ADU-1604, BMS-986249, CS-1002, BCD-145, or REGN-4659.

24. The use according to any one of claims 1 to 23, wherein the TLR7 agonist and the immune checkpoint inhibitor are to be simultaneously administered.

25. The use according to any one of claims 1 to 23, wherein the TLR7 agonist and the immune checkpoint inhibitor are to be separately administered.

26. The use according to any one of claims 1 to 23, wherein the TLR7 agonist is to be administered prior to the immune checkpoint inhibitor.

27. The use according to any one of claims 1 to 23, wherein the TLR7 agonist is to be administered posterior to the immune checkpoint inhibitor.

28. The use according to any one of claims 1 to 27, wherein the medicament further comprises a pharmaceutically acceptable carrier.

29. A kit of an agent for inducing effector memory T cell, comprising a TLR7 agonist and an immune checkpoint inhibitor.

30. A kit of an agent for inducing MHC class I, comprising a TLR7 agonist and an immune checkpoint inhibitor.

31. Use of a TLR7 agonist and an immune checkpoint inhibitor in manufacture of a medicament for inducing effector memory T cell.

32. Use of a TLR7 agonist and an immune checkpoint inhibitor in manufacture of a medicament for inducing MHC class I.

33. Use of a TLR7 agonist comprising N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine,

N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2-difluoroethyl)glycine, or a pharmaceutically acceptable salt thereof, in manufacture of a medicament for treating or preventing a cancer, wherein the medicament is to be used with an immune checkpoint inhibitor.

34. The use according to claim 33, wherein the TLR7 agonist is N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine, or a pharmaceutically acceptable salt thereof.

35. The use according to claim 33, wherein the immune checkpoint inhibitor is anti-PD-1 antibody, anti-PD-L1 antibody, or anti-CTLA-4 antibody.

36. The use according to claim 33, wherein the immune checkpoint inhibitor is anti-PD-1 antibody or anti-PD-L1 antibody.

37. The use according to claim 33, wherein the immune checkpoint inhibitor is anti-PD-1 antibody.

38. The use according to claim 33, wherein the immune checkpoint inhibitor is anti-CTLA-4 antibody.

39. The use according to claim 35 or 36, wherein the anti-PD-1 antibody is nivolumab, pembrolizumab, cemiplimab, tislelizumab, dostarlimab, spartalizumab, camrelizumab, genolimzumab, sintilimab, JNJ-3283, BI-754091, INCMGA-00012, ABBV-181, CC-90006, AGEN-2034w, GSL-010, LZM-009, Sym-021, AB-122, AK-105, CS-1003, HLX-10, or BCD-100.

40. The use according to claim 35 or 36, wherein the anti-PD-L1 antibody is durvalumab, atezolizumab, avelumab, STI-1014, CK-301, BMS-986189, LY-3300054, CX-072, CBT-502, FAZ-053, FS-118, HTI-1088, MSB-2311, BGB-A333, IMC-001, HLX-20, A-167, or BMS-936559.

41. The use according to claim 35 or 37, wherein the anti-CTLA-4 antibody is ipilimumab, tremelimumab, BMS-986218, MK-1308, ADU-1604, BMS-986249, CS-1002, BCD-145, or REGN-4659.

42. The use according to any one of claims 33 to 41, wherein the medicament is to be administered to a patient who is resistant to the immune checkpoint inhibitor.

43. The use according to any one of claims 33 to 41, wherein the medicament is to be administered to a patient who suffers relapse of cancer.

44. The use according to any one of claims 33 to 41, wherein the medicament has a long-term anticancer immunity.

45. The use according to any one of claims 33 to 41, wherein the medicament further comprises a pharmaceutically acceptable carrier.

46. A kit of an agent for treating or preventing a cancer, comprising N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine, N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2-difluoroethyl)glycine, or a pharmaceutically acceptable salt thereof, and an immune checkpoint inhibitor.

47. Use of a TLR7 agonist, comprising N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2,2-trifluoroethyl)glycine,N-{4-[(2-amino-4-{[(3S)-1-hydroxyhexan-3-yl]amino}-6-methylpyrimidin-5-yl)methyl]-3-methoxybenzyl}-N-(2,2-difluoroethyl)glycine, or a pharmaceutically acceptable salt thereof, and an immune checkpoint inhibitor in manufacture of a medicament for treating or preventing a cancer.