CLAIMS

1. The use of a recombinant Listeria strain in the manufacture of a medicament for the treatment of a subject having a tumor or cancer, wherein the recombinant Listeria strain comprising an episomal plasmid comprising a recombinant nucleic acid, said recombinant nucleic acid molecule comprising a first open reading frame encoding a recombinant polypeptide consisting of a truncated LLO protein and a second open reading frame encoding a metabolic enzyme, wherein said Listeria comprises a mutation in each of the endogenous alanine racemase gene (dal), D-amino acid transferase gene (dat), and actA genes, and wherein said recombinant Listeria strain elicits an anti-tumor T cell response in said subject said T-cell response comprising increasing a ratio of T effector cells to regulatory T cells (Tregs).

2. The use of a recombinant Listeria strain of claim 1, wherein said truncated LLO protein is an N-terminal LLO.

3. The use of a recombinant Listeria strain of claim 2, wherein said LLO is set forth in SEQ ID NO: 2.

4. The use of a recombinant Listeria strain of any one of claims 1-3, wherein said Listeria lacks antibiotic resistance genes.

5. The use of a recombinant Listeria strain of claim 1, wherein said plasmid is a multicopy plasmid.

6. The use of a recombinant Listeria strain of any one of claims 1-5, wherein said metabolic enzyme is an amino acid metabolism enzyme.

7. The use of a recombinant Listeria strain of claim 6, wherein said metabolic enzyme is a D-amino acid transferase enzyme or a alanine racemase enzyme.

8. The use of a recombinant Listeria strain of any one of claims 1-7, wherein the medicament further comprising an adjuvant.

9. The use of a recombinant Listeria strain of claim 8, wherein said adjuvant comprises a granulocyte/macrophage colony-stimulating factor (GM-CSF), a saponin QS21, a monophosphoryl lipid Aa CpG-containing oligonucleotide, or a bacterial toxin.

10. The use of a recombinant Listeria strain of any one of claims 1-9, wherein the medicament is to be co-administered with an immune checkpoint protein inhibitor.

11. The use of a recombinant Listeria strain of claim 10, wherein said immune checkpoint protein is programmed cell death protein 1 (PD1), T cell membrane protein 3 (TIM3), adenosine A2a receptor (A2aR) and lymphocyte activation gene 3 (LAG3), killer immunoglobulin receptor (KIR) or cytotoxic T-lymphocyte antigen-4 (CTLA-4).

12. The use of a recombinant Listeria strain of any one of claims 1- 9, or 1-10, wherein the medicament is to be co-administered with a cytokine that enhances said anti-tumor immune.

13. The use of a recombinant Listeria strain of claim 12, wherein said cytokine is: a type I interferon (IFN-α / IFN-β), TNF-α, IL-1, IL-4, IL-12, or INF-γ.

14. The use of a recombinant Listeria strain of any one of claims 1-13, wherein said medicament induces the expansion of T effector cells in peripheral lymphoid organs leading to an enhanced presence of T effector cells at the tumor site.

15. The use of a recombinant Listeria strain of claim 14, wherein said expansion of T effector cells leads to an increased ratio of T effector cells to regulatory T cells in the periphery and at the tumor site without affecting the number of Tregs.

16. The use of a recombinant Listeria strain of claim 15, wherein said T effector cells are CD4+FoxP3- and CD8+ T-cells.

17. The use of a recombinant Listeria strain of claim 15, wherein said T effector cells are CD4+FoxP3- T cells.

18. The use of a recombinant Listeria strain of claim 15, wherein said regulatory T cells are CD4+FoxP+ T cells.

19. The use of a recombinant Listeria strain in the manufacture of a medicament for the treatment of a subject having a tumor or cancer, wherein the recombinant Listeria strain comprising an episomal plasmid comprising a recombinant nucleic acid, said recombinant nucleic acid comprising a first open reading frame encoding a recombinant polypeptide consisting of a truncated LLO protein, wherein said Listeria comprises a mutation in the endogenous alanine racemase gene (dal), D-amino acid transferase gene (dat), and actA

genes, wherein the recombinant Listeria strain elicits a T-cell response comprising increasing a ratio of T effector cells to regulatory T cells (Tregs) in the spleen of the subject.

20. The use of a recombinant Listeria strain of claim 19, wherein said truncated LLO protein is an N-terminal LLO.

21. The use of a recombinant Listeria strain of any one of claims 19-20, wherein said LLO is set forth in SEQ ID NO: 2.

22. The use of a recombinant Listeria strain of any one of claims 19-21, wherein said Listeria lacks an antibiotic resistance genes.

23. The use of a recombinant Listeria strain of claim 19, wherein said plasmid is a multicopy plasmid.

24. The use of a recombinant Listeria strain of any one of claims 19-23, wherein the medicament further comprising an adjuvant.

25. The use of a recombinant Listeria strain of any one of claims 19-24, wherein said adjuvant comprises a granulocyte/macrophage colony-stimulating factor (GM-CSF), a saponin QS21, a monophosphoryl lipid A, a CpG-containing oligonucleotide, or a bacterial toxin.

26. The use of a recombinant Listeria strain of any one of claims 19-25, wherein the recombinant Listeria strain is to be co-administered with an immune checkpoint protein inhibitor.

27. The use of a recombinant Listeria strain of claim 26, wherein said immune checkpoint protein is programmed cell death protein 1 (PD1), T cell membrane protein 3 (TIM3), adenosine A2a receptor (A2aR) and lymphocyte activation gene 3 (LAG3), killer immunoglobulin receptor (KIR) or cytotoxic T-lymphocyte antigen-4 (CTLA-4).

28. The use of a recombinant Listeria strain of any one of claims 19-25, or 19-26, wherein the recombinant Listeria strain is to be co-administered with a cytokine that enhances said anti-tumor immune response.

29. The use of a recombinant Listeria strain of claim 28, wherein said cytokine is: a type I interferon (IFN-α / IFN-β), TNF-α, IL-1, IL-4, IL-12, or INF-γ.

30. The use of a recombinant Listeria strain of any one of claims 19-29, wherein the use of a recombinant Listeria strain induces the expansion of T effector cells in peripheral lymphoid organs.

31. The use of a recombinant Listeria strain of claim 30, wherein said expansion of T effector cells leads to an increased ratio of T effector cells to regulatory T cells in the periphery without affecting the number of Tregs.

32. The use of a recombinant Listeria strain of claim 31, wherein said T effector cells are CD4+FoxP3- and CD8+ T-cells.

33. The use of a recombinant Listeria strain of claim 31, wherein said T effector cells are CD4+FoxP3- T cells.

34. The use of a recombinant Listeria strain of claim 31, wherein said regulatory T cells are CD4+FoxP+ T cells.

35. The use of a recombinant Listeria strain of any one of claims 1-18, wherein the medicament elicits an anti-tumor T-cell response in a subject having a tumor or cancer.

36. The use of a recombinant Listeria strain of any one of claims 19-34, wherein the medicament elicits an anti-tumor T-cell response in a subject having a tumor or cancer.