[8a] In one aspect of the present disclosure, there is provided an isolated fusion protein comprising, in an N- to C- terminal orientation:

(i) a soluble portion of an extracellular domain of a cytokine receptor;

(ii) an amino acid linker;

(iii) an immunoglobulin (Ig) hinge region; and

(iv) an immunoglobulin (Ig) Fc domain;

wherein the amino acid linker consists of from 5 to 40 amino acid residues.

[8b] In another aspect of the present disclosure, there is provided a cytokine binding protein comprising two fusion proteins disclosed herein, wherein each fusion protein comprises an extracellular domain of a cytokine receptor, wherein the two fusion proteins are covalently linked together, and wherein the two extracellular domains together define a binding site for binding a cytokine.

[8c] In a further aspect of the present disclosure, there is provided an isolated nucleic acid comprising a nucleotide sequence encoding the fusion protein disclosed herein.

[8d] In another aspect of the present disclosure, there is provided an expression vector comprising the nucleic acid disclosed herein.

[8e] In a further aspect of the present disclosure, there is provided a host cell comprising the expression vector disclosed herein.

[8f] In another aspect of the present disclosure, there is provided a pharmaceutical composition comprising: (i) the expression vector disclosed herein; and (ii) at least one pharmaceutically acceptable carrier or diluent.

[8g] In a further aspect of the present disclosure, there is provided a use of a fusion protein disclosed herein in the manufacture of a medicament for treating cancer in a subject in need thereof.

[8h] In another aspect of the present disclosure, there is provided a use of an expression vector comprising an isolated nucleic acid comprising a nucleotide sequence encoding the fusion protein disclosed herein in the manufacture of a medicament for treating cancer in a subject in need thereof.

[8i] In a further aspect of the present disclosure, there is provided he fusion protein disclosed herein or the expression vector comprising an isolated nucleic acid comprising a nucleotide sequence encoding the fusion protein disclosed herein, for use in treating cancer.

[9] The present disclosure provides an isolated fusion protein that comprises, for

WHAT IS CLAIMED IS:

1. An isolated fusion protein comprising, in an N- to C- terminal orientation:

(i) a soluble portion of an extracellular domain of a cytokine receptor;

(ii) an amino acid linker;

(iii) an immunoglobulin (Ig) hinge region; and

(iv) an immunoglobulin (Ig) Fc domain;

wherein the amino acid linker consists of from 5 to 40 amino acid residues.

2. The isolated fusion protein of claim 1, wherein the amino acid linker comprises from 10 to 40 amino acid residues.

3. The isolated fusion protein of claim 1, wherein the amino acid linker comprises from 10 to 30 amino acid residues.

4. The isolated fusion protein of claim 1, wherein the amino acid linker comprises from 10 to 20 amino acid residues.

5. The isolated fusion protein of claim 1, wherein the amino acid linker comprises from 10 to 15 amino acid residues.

6. The isolated fusion protein of any one of claims 1-5, wherein the amino acid linker comprises a C-terminal portion of an immunoglobulin (Ig) CH1 domain.

7. The isolated fusion protein of claim 6, wherein the Ig CH1domain is selected from an IgG1, IgG2, IgG3, IgG4, IgA1, IgA2, IgD, IgE, and IgM CH1domain.

8. The isolated fusion protein of claim 7, wherein the Ig CH1domain is an IgG1 CH1 domain.

9. The isolated fusion protein of claim 8, wherein the amino acid linker comprises an amino acid sequence selected from SEQ ID NO: 1, SEQ ID NO: 60, and SEQ ID NO: 61.

10. The isolated fusion protein of any one of claims 1-9, wherein the cytokine receptor is a human TGFβ type II receptor.

11. The isolated fusion protein of claim 10, wherein the soluble portion of an extracellular domain of a cytokine receptor comprises amino acid residues 23-159 of SEQ ID NO: 12.

12. The isolated fusion protein of any one of claims 1-11, wherein the Ig Fc domain and hinge region are selected from a human IgG1, IgG2, IgG3, IgG4, IgA1, IgA2, IgD, IgE, and IgM Fc domain and hinge region.

13. The isolated fusion protein of claim 12, wherein the Ig Fc domain and hinge region are a human IgG1 Fc domain and hinge region.

14. The isolated fusion protein of claim 13, wherein the Ig Fc domain and hinge region comprise the amino acid sequence of SEQ ID NO: 13.

15. The isolated fusion protein of any one of claims 1-14, wherein the Ig Fc, Ig hinge region, and Ig CH1 domain are derived from a single immunoglobulin.

16. The isolated fusion protein of any one of claims 1-15, wherein the fusion protein comprises an amino acid sequence selected from SEQ ID NO: 22, SEQ ID NO: 62, and SEQ ID NO: 63.

17. A cytokine binding protein comprising two fusion proteins of any one of claims 1-16, wherein each fusion protein comprises an extracellular domain of a cytokine receptor, wherein the two fusion proteins are covalently linked together, and wherein the two extracellular domains together define a binding site for binding a cytokine.

18. An isolated nucleic acid comprising a nucleotide sequence encoding the fusion protein of any one of claims 1-17.

19. An expression vector comprising the nucleic acid of claim 18.

20. The expression vector of claim 19, wherein the expression vector is an oncolytic virus.

21. The expression vector of claim 20, wherein the oncolytic virus is an adenovirus.

22. The expression vector of claim 21, wherein the adenovirus is a type 5 adenovirus .

23. The expression vector of claim 22, wherein the nucleotide sequence encoding the fusion protein is inserted into an E1b-19K insertion site located between the start site of E1b-19K and the start site of E1b-55K.

24. The expression vector of claims 22 or 23, wherein the adenovirus comprises a deletion of a Pea3 binding site, or a functional fragment thereof.

25. A host cell comprising the expression vector of any one of claims 19-24.

26. A pharmaceutical composition comprising: (i) the expression vector of any one of claims 19-24; and (ii) at least one pharmaceutically acceptable carrier or diluent.

27. Use of a fusion protein of any one of claims 2-16 in the manufacture of a medicament for treating cancer in a subject in need thereof.

28. Use of an expression vector comprising an isolated nucleic acid comprising a nucleotide sequence encoding the fusion protein of any one of claims 2-17 in the manufacture of a medicament for treating cancer in a subject in need thereof.

29. The use of claim 27 or 28, wherein the cancer is selected from melanoma, squamous cell carcinoma of the skin, basal cell carcinoma, head and neck cancer, breast cancer, anal cancer, cervical cancer, non-small cell lung cancer, mesothelioma, small cell lung cancer, renal cell carcinoma, prostate cancer, gastroesophageal cancer, colorectal cancer, testicular cancer, bladder cancer, ovarian cancer, liver cancer, hepatocellular carcinoma, cholangiocarcinoma, brain and central nervous system cancer, thyroid cancer, parathyroid cancer (*e.g.,* parathyroid carcinoma), endometrial cancer, neuroendocrine cancer, lymphoma (*e.g.*, Hodgkin and non-Hodgkin), leukemia, merkel cell carcinoma, gastrointestinal stromal tumors, multiple myeloma, uterine cancer, a sarcoma, kidney cancer, ocular cancer, pancreatic cancer, and a germ cell cancer (*e.g.,* ovarian germ cell cancer).

30. The fusion protein of any one of claims 2-16 or an expression vector comprising an isolated nucleic acid comprising a nucleotide sequence encoding the fusion protein of any one of claims 2-17, for use in treating cancer.