

26. A method for detecting PD-1 on a cell, the method comprising contacting a test biological sample with a binding agent or derivative of any one of claims 1-21, and/or a combination of any one of claims 39-43, and detecting the binding agent bound to the biological sample or components thereof.
27. The method of claim 26, further comprising comparing the amount of binding to the test biological sample or components thereof to the amount of binding to a control biological sample or components thereof, wherein increased binding to the test biological sample or components thereof relative to the control biological sample or components thereof indicates the presence of a cell expressing PD-1 in the test biological sample.
28. The method of claim 26 or 27 wherein the test biological sample is mammalian blood.
29. The method of any one of claims 26-28 wherein the method is an *in vivo* method.
30. The method of any one of claims 26-28 wherein the method is an *in vitro* method.
31. A method for treating, preventing and / or ameliorating an infectious disease, cancer and / or autoimmunity in a mammal comprising administering to the mammal at least one effective dose of a pharmaceutical composition comprising a binding agent or derivative of any one of claims 1-21, and/or a combination of any one of claims 39-43.
32. The method of claim 31 wherein the infectious disease is human immunodeficiency virus (HIV).
33. The method of claim 31 or 32 wherein the binding agent and / or derivative thereof used to treat infectious disease, HIV and / or cancer is a PD-1 antagonist.
34. The method of claim 31 wherein the binding agent and / or derivative thereof used to treat an autoimmune condition is a PD-1 agonist.

35. The method of any one of claims 31-34 wherein multiple doses are administered to the animal.
36. The method of any one of claims 31-35 wherein the binding agent is administered in a dosage amount of about 1 to 50 mg / kg.
37. A kit for detecting the expression of PD-1 in or on a cell, the kit comprising a binding agent or derivative or combination of any one of claims 1-21 and instructions for use.
38. The kit of claim 37 wherein the binding agent, antibody, or derivative is in lyophilized form.
39. A combination of binding agents, the combination comprising a first binding agent that blocks the interaction of PD-1 and PD-L1 and a second binding agent that does not block the interaction of PD-1 and PD-L1.
40. The combination of claim 39 wherein the second binding agent binds PD-1.
41. The combination of claim 39 wherein the first and / or second binding agents are antibodies.
42. The combination of claim 40 wherein the binding agents are monoclonal antibodies.
43. The combination of claim 39 wherein the second binding agent comprises the amino acid sequences SEQ ID NOS. 2, 25, 48, 71, 94 and 117; or SEQ ID NOS. 17, 40, 63, 86, 109, and 132.
44. A method for producing a combination of any one of claims 39-43 comprising combining a first binding agent that blocks the interaction of PD-1 and PD-L1 and a second binding agent that does not block the interaction of PD-1 and PD-L1.
45. The method of claim 44 wherein the second binding agent binds PD-1.
46. The method of claim 44 wherein the first and / or second binding agents are antibodies.

26. A method for detecting PD-1 on a cell, the method comprising contacting a test biological sample with a binding agent or derivative of any one of claims 1-21, and/or a combination of any one of claims 39-43, and detecting the binding agent bound to the biological sample or components thereof.
27. The method of claim 26, further comprising comparing the amount of binding to the test biological sample or components thereof to the amount of binding to a control biological sample or components thereof, wherein increased binding to the test biological sample or components thereof relative to the control biological sample or components thereof indicates the presence of a cell expressing PD-1 in the test biological sample.
28. The method of claim 26 or 27 wherein the test biological sample is mammalian blood.
29. The method of any one of claims 26-28 wherein the method is an *in vivo* method.
30. The method of any one of claims 26-28 wherein the method is an *in vitro* method.
31. Use of a pharmaceutical composition comprising a binding agent or derivative of any one of claims 1-21, and/or a combination of any one of claims 39-43, in the manufacture of a medicament in treating, preventing and / or ameliorating an infectious disease, cancer and / or autoimmunity in a mammal, wherein the mammal is to be administered at least one effective dose of the medicament.
32. The use of claim 31 wherein the infectious disease is human immunodeficiency virus (HIV).
33. The use of claim 31 or 32 wherein the binding agent and / or derivative thereof used to treat infectious disease, HIV and / or cancer is a PD-1 antagonist.
34. The use of claim 31 wherein the binding agent and / or derivative thereof used to treat an autoimmune condition is a PD-1 agonist.

35. The use of any one of claims 31-34 wherein multiple doses are to be administered to the animal.
36. The use of any one of claims 31-35 wherein the binding agent is to be administered in a dosage amount of about 1 to 50 mg / kg.
37. A kit for detecting the expression of PD-1 in or on a cell, the kit comprising a binding agent or derivative or combination of any one of claims 1-21 and instructions for use.
38. The kit of claim 37 wherein the binding agent, antibody, or derivative is in lyophilized form.
39. A combination of binding agents, the combination comprising a first binding agent that blocks the interaction of PD-1 and PD-L1 and a second binding agent that does not block the interaction of PD-1 and PD-L1.
40. The combination of claim 39 wherein the second binding agent binds PD-1.
41. The combination of claim 39 wherein the first and / or second binding agents are antibodies.
42. The combination of claim 40 wherein the binding agents are monoclonal antibodies.
43. The combination of claim 39 wherein the second binding agent comprises the amino acid sequences SEQ ID NOS. 2, 25, 48, 71, 94 and 117; or SEQ ID NOS. 17, 40, 63, 86, 109, and 132.
44. A method for producing a combination of any one of claims 39-43 comprising combining a first binding agent that blocks the interaction of PD-1 and PD-L1 and a second binding agent that does not block the interaction of PD-1 and PD-L1.
45. The method of claim 44 wherein the second binding agent binds PD-1.
46. The method of claim 44 wherein the first and / or second binding agents are antibodies.