

WE CLAIM:

1. An antibody that binds human PD-1, comprising: 1) a heavy chain variable region (HCVR); and 2) a light chain variable region (LCVR),
5 wherein the HCVR comprises a HCDR1, HCDR2, and HCDR3, and the LCVR comprises a LCDR1, LCDR2, and LCDR3, wherein the amino acid sequence of the HCDR1 is SEQ ID NO:5, the amino acid sequence of the HCDR2 is SEQ ID NO:6, and the amino acid sequence of the HCDR3 is SEQ ID NO:7, the amino acid sequence of the LCDR1 is SEQ ID NO:8,
10 the amino acid sequence of the LCDR2 is SEQ ID NO:9, and the amino acid sequence of the LCDR3 is SEQ ID NO:10, and wherein the antibody is an IgG1.
2. The antibody of Claim 1, wherein the amino acid sequence of the HCVR is SEQ ID NO:3 and the amino acid sequence of the LCVR is SEQ ID NO:4.
- 15 3. The antibody of Claim 2 comprising: 1) a HC; and 2) a LC, wherein the amino acid sequence of the HC is SEQ ID NO:1, and the amino acid sequence of the LC is SEQ ID NO:2.
4. The antibody of Claim 3 comprising two HCs and two LCs, wherein the amino acid sequence of each of the HCs is SEQ ID NO:1, and the amino acid sequence of each of the LCs is SEQ ID NO:2.
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5. The antibody of any one of Claims 1-4, wherein the antibody is an agonist of human PD-1 as determined in an *in vivo* model of an autoimmune disorder or transplant rejection.
6. The antibody of Claim 5 wherein the *in vivo* model is a model for GVHD,
25 solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, or scleroderma.
7. The antibody of Claim 5 wherein the *in vivo* model is a mouse model for GVHD and/or lupus nephritis.
8. A pharmaceutical composition comprising the antibody of any one of
30 Claims 1-7, and one or more pharmaceutically acceptable carriers, diluents, or excipients.

9. A method of treating an autoimmune disease comprising administering to a patient in need thereof, an effective amount of the antibody of any one of Claims 1-7.
10. The method of Claim 9, wherein the autoimmune disease is GVHD, solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, scleroderma, celiac disease, Addison's disease, Hashimoto's disease, Graves' disease, atrophic gastritis/pernicious anemia, acquired hypogonadism/infertility, hypoparathyroidism, Coombs positive-hemolytic anemia, chronic allergic diseases (such as asthma, hay fever, or allergic rhinitis), Crohn's disease, male or female infertility, Behcet's, Wegener's granulomatosis, myocarditis, myositis, PMR, spontaneous abortion, vitiligo, atherosclerosis, autoimmune pancreatitis, bullous pemphigoid, chronic viral infections, or myasthenia gravis.
11. The method of claim 10, wherein the autoimmune disease is GVHD, solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, or scleroderma.
12. The method of any one of Claims 9-11, wherein the antibody is administered in combination with another therapeutic agent effective for the treatment of an autoimmune disease.
13. The antibody of any one of Claims 1-7, for use in therapy.
14. The antibody of any one of Claims 1-7, for use in treating an autoimmune disease.
15. The antibody for use of Claim 14, wherein the autoimmune disease is GVHD, solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, scleroderma, celiac disease, Addison's disease, Hashimoto's disease, Graves' disease, atrophic gastritis/pernicious anemia, acquired hypogonadism/infertility, hypoparathyroidism, Coombs positive-hemolytic anemia, chronic allergic diseases (such as asthma, hay fever, or allergic rhinitis), Crohn's disease, male or female infertility, Behcet's, Wegener's granulomatosis, myocarditis, myositis, PMR, spontaneous abortion,

vitiligo, atherosclerosis, autoimmune pancreatitis, bullous pemphigoid, chronic viral infections, or myasthenia gravis.

16. The antibody for use of Claim 15 wherein the autoimmune disease is GVHD, solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, or scleroderma.

17. The antibody for use of any one of Claims 14-16 wherein the antibody is administered in simultaneous, separate, or sequential combination with another therapeutic agent effective for the treatment of an autoimmune disease.

18. The use of the antibody of any one of Claims 1-7 for the manufacture of a medicament for the treatment of an autoimmune disease.

19. The use of Claim 18, wherein the autoimmune disease is GVHD, solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, scleroderma, celiac disease, Addison's disease, Hashimoto's disease, Graves' disease, atrophic gastritis/pernicious anemia, acquired hypogonadism/infertility, hypoparathyroidism, Coombs positive-hemolytic anemia, chronic allergic diseases (such as asthma, hay fever, or allergic rhinitis), Crohn's disease, male or female infertility, Behcet's, Wegener's granulomatosis, myocarditis, myositis, PMR, spontaneous abortion, vitiligo, atherosclerosis, autoimmune pancreatitis, bullous pemphigoid, chronic viral infections, or myasthenia gravis.

20. The use of Claim 19, wherein the autoimmune disease is GVHD, solid organ transplantation rejection, vasculitis, SLE, T1DM, MS, GCA, PsO, PsA, RA, IBD, UC, AS, SjS, autoimmune hepatitis, or scleroderma.

21. The use of any one of Claims 18-19 wherein the antibody is administered in simultaneous, separate, or sequential combination with another therapeutic agent effective for the treatment of an autoimmune disease.