

Claims

1. An in vitro method for interfering with Programmed Cell Death 1 protein (PD-1) and Lymphocyte activation 3 (LAG3) mediated inhibition in a PD-1 and/or LAG3 positive cell, the method comprising contacting said cell with an antibody or a functional part, derivative and/or analogue thereof that comprises

- one heavy-light chain combination that can bind to an extracellular part of PD-1 and
- one heavy-light chain combination that can bind to an extracellular part of LAG3, thereby inhibiting PD-1 and/or LAG3 mediated activity in said cell,

wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of a heavy chain variable region of any one of the VH of MF6076; MF6226; MF6256; MF6930; MF6974; or MF6982, preferably MF6256; MF6930; MF6076, or MF6974, preferably MF6930, and

wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

2. The method of claim 1, wherein the binding of said PD-1 binding heavy-light chain combination to PD-1 blocks the binding of PD-1 to PD-L1 and/or PD-L2.

3. An in vitro method for stimulating the formation, stability and/or activity of an immunological synapse comprising providing a system that comprises at least two cells capable of associating with each other via an immunological synapse and providing said system with an antibody or a functional part, derivative and/or analogue thereof that comprises

- one heavy-light chain combination that can bind to an extracellular part of PD-1 and
- one heavy-light chain combination that can bind to an extracellular part of LAG3,

thereby stimulating the formation, stability and/or activity of an immunological synapse between said at least two cells,

wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of a heavy chain variable region of any one of the VH of MF6076; MF6226; MF6256; MF6930; MF6974; or MF6982, preferably MF6256; MF6930; MF6076, or MF6974, preferably MF6930, and

wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

4. An antibody or variant thereof that comprises one heavy-light chain combination that can bind to an extracellular part of PD-1 and one heavy-light chain combination that can bind to an extracellular part of LAG3,

wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of a heavy chain variable region of any one of the VH of MF6076; MF6226; MF6256; MF6930; MF6974; or MF6982, preferably MF6256; MF6930; MF6076, or MF6974, preferably MF6930, and

wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

5. The antibody or variant thereof of claim 4, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of the heavy chain variable region of the VH of MF6076.

6. The antibody or variant thereof of claim 4, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable

region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of the heavy chain variable region of the VH of MF6226.

7. The antibody or variant thereof of claim 4, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of the heavy chain variable region of the VH of MF6256.

8. The antibody or variant thereof of claim 4, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of the heavy chain variable region of the VH of MF6930.

9. The antibody or variant thereof of claim 4, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of the heavy chain variable region of the VH of MF6974.

10. The antibody or variant thereof of claim 4, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of the heavy chain variable region of the VH of MF6982.

11. The antibody or variant thereof of any one of claims 4-10, wherein the one heavy-light chain combination that binds PD-1 blocks the binding of PD-1 to PD-L1 and/or PD-L2.

12. The antibody or variant thereof of any one of claims 4-11, wherein said LAG-3 binding heavy-light chain combination binds to LAG-3 extracellular domain 1, 2, 3 or 4, preferably domain 1 or domain 2, preferably domain 2.

13. The antibody or variant thereof of any one of claims 4-12, wherein the one heavy-light chain combination that binds an extracellular part of PD-1 is defined as a one heavy-light chain combination that when in a bivalent monospecific antibody that comprises two

of said heavy-light chain combinations that bind PD-1, inhibits PD-1/PD-L1 inhibition in a Jurkat cell in a range of 20-150% when compared to the inhibition obtained with the antibody Nivolumab on a Jurkat cell.

14. The antibody or variant thereof of any one of claims 4-13, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076; MF6226; MF6236; MF6256; MF6930; MF6932; MF6935; MF6936; MF6972; MF6974; or MF6982, preferably MF6256; MF6930; MF6076, MF6974, or MF6226, preferably MF6930, MF6076 or MF6974, having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

15. The antibody or variant thereof of any one of claims 4-13, wherein the one heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076; MF6226; MF6256; MF6930; MF6974; or MF6982, preferably MF6256; MF6930; MF6076, or MF6974, preferably MF6930.

16. The antibody or variant thereof of any one of claims 4-15, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a heavy chain variable region with a CDR1, CDR2 and CDR3 region that comprises the amino acid sequence of the CDR1, CDR2 and CDR3 of a heavy chain variable region of any one of the VH of MF7100; MF7111; MF7116; MF7118; MF7134; MF7136; MF7137; MF7142; MF7146; MF7165; MF7167; MF7185; MF7443; MF7444; MF7515; MF7518; MF7096; MF7097; MF7106; MF7120; MF7133; MF7139; MF7144; or MF7524, preferably MF7518; MF7165; MF7116; MF7096; MF7133; MF7139; MF7524 or MF7137, preferably MF7139; MF7524, MF7133, MF7518 or MF7096;

wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

17. The antibody or variant thereof of any one of claims 4-15, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7100; MF7111; MF7116; MF7118; MF7134; MF7136; MF7137; MF7142; MF7146; MF7165; MF7167; MF7185; MF7443; MF7444; MF7515; MF7518; MF7096; MF7097; MF7106; MF7120; MF7133; MF7139; MF7144; or MF7524, preferably MF7518; MF7165; MF7116; MF7096; MF7133; MF7139; MF7524 or MF7137, preferably MF7139; MF7524, MF7133, MF7518 or MF7096, having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region;

wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

18. The antibody or variant thereof of any one of claims 4-17, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7100; MF7111; MF7116; MF7118; MF7134; MF7136; MF7137; MF7142; MF7146; MF7165; MF7167; MF7185; MF7443; MF7444; MF7515; MF7518; MF7096; MF7097; MF7106; MF7120; MF7133; MF7139; MF7144; or MF7524, preferably MF7518; MF7165; MF7116; MF7096; MF7133; MF7139; MF7524 or MF7137, preferably MF7139; MF7524, MF7133, MF7518 or MF7096.

19. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7139 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions,

substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

20. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7524 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

21. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7133 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

22. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7518 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of

the heavy chain variable region of MF6076 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

23. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7096 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

24. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7139 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region

CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region: and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6974 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

25. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7524 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region: and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6974 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

26. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of

the heavy chain variable region of MF7133 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region: and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6974 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

27. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7518 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region: and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6974 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

28. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7096 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region: and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6974 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

29. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7139 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6930 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

30. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7524 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6930 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF

31. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7133; having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the

indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6930 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

32. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7518 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6930 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

33. The antibody or variant thereof of any one of claims 4 to 18, wherein the antibody comprises:

one heavy-light chain combination that can bind to an extracellular part of LAG-3 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF7096 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the indicated MF, wherein the one heavy-light chain combination that can bind to an extracellular part of LAG3 comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT, and wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region; and

one heavy-light chain combination that can bind to an extracellular part of PD-1 which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6930 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF.

34. An antibody or variant thereof that comprises a heavy-light chain combination that can bind to an extracellular part of PD-1 and which comprises

a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076 or MF6930 having at most 15, preferably 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH of the MF, wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region, and

a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

35. The antibody or variant thereof of claim 34, wherein the heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6076.

36. The antibody or variant thereof of claim 34, wherein the heavy-light chain combination that can bind to an extracellular part of PD-1 comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6930.

37. The antibody or variant thereof of any one of the preceding claims which comprises a light chain variable region having a sequence that is at least 80% identical to the amino acid sequence

DIQMTQSPSSLSASVGDRVTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQSGVPSR
FSGSGSGTDFTLTISLQPEDFATYYCQQSYSTPPTFGQGTKVEIK,

wherein the CDR1 comprises sequence QSISSY, CDR2 comprises sequence AAS and CDR3 comprises sequence QQSYSTPPT.

38. The antibody or variant thereof of any one of the preceding claims which comprises a light chain variable region having the amino acid sequence

DIQMTQSPSSLSASVGDRVTITCRASQSISSYLNWYQQKPGKAPKLLIYAASSLQSGVPSR
FSGSGSGTDFTLTISLQPEDFATYYCQQSYSTPPTFGQGTKVEIK.

39. The method of any one of claims 1 to 3, wherein the antibody or variant thereof is an antibody according to any one of claims 4 to 38.

40. An antibody or variant thereof of any one of claims 4 to 38 for use as a medicament.

41. An antibody or variant thereof of any one of claims 4 to 38 for use in a method for the treatment of cancer or an infection with a pathogen, such as a virus or parasite.

42. A composition comprising at least one antibody or variant thereof according to any one of claims 4 to 38.

43. A pharmaceutical composition comprising at least one antibody or variant thereof of any one of claims 4 to 38 and a pharmaceutically acceptable carrier, diluent or excipient.

44. A nucleic acid molecule with a length of at least 15 nucleotides encoding at least one CDR region of an antibody or variant of any one of claims 4 to 38.

45. A nucleic acid molecule according to claim 44 encoding at least a heavy chain variable region of an antibody or variant of any one of claims 4 to 38.

46. A nucleic acid molecule according to claim 44 or 45, encoding a heavy chain variable region of any one of the VH of MF6076; MF6226; MF6256; MF6930; MF6974; or MF6982, preferably MF6256; MF6930; MF6076, or MF6974, preferably MF6930.

47. A nucleic acid molecule encoding an antibody or variant of any one of claims 4 to 38.

48. A vector comprising a nucleic acid molecule or functional equivalent thereof according to any one of claims 44-47.

49. The vector according to claim 48, wherein the vector comprising a nucleic acid molecule encoding an antibody or variant of any one of claims 4 to 38.

50. An isolated or recombinant cell, or a non-human animal, comprising a nucleic acid molecule according to any one of claims 44-47 or a vector according to claim 48 or 49.

51. An antibody or variant thereof that comprises a heavy-light chain combination that can bind to an extracellular part of PD-1 and which comprises a heavy chain variable region that comprises the amino acid sequence of the heavy chain variable region of MF6974 having at most 10, and preferably having 0, 1, 2, 3, 4 or 5 amino acid insertions, deletions, substitutions, or a combination thereof, with respect to the amino acid sequence of the VH as depicted for the MF, wherein said insertions, deletions, or substitutions are not in the CDR1, CDR2 or CDR3 of the heavy chain variable region;

wherein the a heavy-light chain combination comprises a light chain comprising a light chain variable region CDR1 comprising sequence QSISSY, CDR2 comprising sequence AAS and CDR3 comprising sequence QQSYSTPPT.

52. Use of an antibody or variant of any one of claims 4 to 38, a composition according to claim 42 or 43, a nucleic acid molecule according to claim 47, or a vector according to claim 49 in the manufacture of a medicament for treating a cancer or an infection with a pathogen in a subject in need thereof, wherein the cancer or an infection with a pathogen comprises cells that express PD-L1 and/or PD-L2 or wherein the cancer or pathogen is PD-1/PD-L1/2 and LAG-3/MHCII responsive.