

CLAIMS:

1. A Dectin-2 binding agent comprising an immunoglobulin heavy chain variable region polypeptide and an immunoglobulin light chain variable region polypeptide, wherein:

the immunoglobulin heavy chain variable region polypeptide comprises a complementarity determining region 1 (HCDR1) comprising any one of SEQ ID NOs: 1-30, a complementarity determining region 2 (HCDR2) comprising any one of SEQ ID NOs: 31-64, and a complementarity determining region 3 (HCDR3) comprising any one of SEQ ID NOs: 65-103 or 323; or

the immunoglobulin light chain variable region polypeptide comprises a complementarity determining region 1 (LCDR1) comprising any one of SEQ ID NOs: 104-125, a complementarity determining region 2 (LCDR2) comprising any one of SEQ ID NOs: 126-148, and a complementarity determining region 3 (LCDR3) comprising any one of SEQ ID NOs: 149-181.

2. A Dectin-2 binding agent comprising an immunoglobulin heavy chain variable region of any one of SEQ ID NOs: 243-282 or 324, or at least the CDRs thereof; and an immunoglobulin light chain variable region of any one of SEQ ID NOs: 283-322 or at least the CDRs thereof.

3. A Dectin-2 binding agent comprising an immunoglobulin heavy chain variable region polypeptide with an amino acid sequence that is at least 90% identical to any one of SEQ ID NOs: 243-282 or 324, and an immunoglobulin light chain variable region polypeptide with an amino acid sequence that is at least 90% identical to any one of SEQ ID NOs: 284-322.

4. The Dectin-2 binding agent of any one of claims 1-3, which comprises the heavy and light chain immunoglobulin polypeptides, or at least the CDRs thereof, of a Dectin-2 binding agent of Table 1.

5. The Dectin-2 binding agent of any one of claims 1-4, wherein the binding agent is an antibody, an antibody conjugate, or an antigen-binding fragment thereof.

6. The Dectin-2 binding agent of claim 5, wherein the binding agent is an antibody fragment selected from F(ab')₂, Fab', Fab, Fv, scFv, dsFv, dAb, and a single chain binding polypeptide.
7. The Dectin-2 binding agent of claim 5, wherein the binding agent is an antibody.
8. The Dectin-2 binding agent of any one of claims 5-7, wherein the antibody is an IgG, IgM, IgA, IgD or IgE antibody.
9. The Dectin-2 binding agent of any one of claims 5-8, wherein the antibody is an IgG antibody.
10. The Dectin-2 binding agent of claim 9, wherein the IgG antibody comprises one or more mutations in the Fc region that result in modulated binding to one or more Fc receptors.
11. The Dectin-2 binding agent of any one of claims 7-10, wherein the antibody exhibits antibody dependent cell-mediated cytotoxicity (ADCC), antibody-dependent cell-mediated phagocytosis (ADCP), or complement dependent cytotoxicity (CDC).
12. The Dectin-2 binding agent of any of claims 1-11, wherein the binding agent is, or is part of, a multispecific or bispecific antibody, chimeric antigen receptor, chimeric T cell receptor, bispecific T-cell engager, multivalent antibody, diabody, triabody, tetrabody, hexabody, bis-scFV fragment, Fab dimer, or Fab trimer.
13. A nucleic acid encoding the heavy chain immunoglobulin polypeptide of the Dectin-2 binding agent of any one of claims 1-12.
14. A nucleic acid encoding the light chain immunoglobulin polypeptide of the Dectin-2 binding agent of any one of claims 1-12.
15. A nucleic acid encoding the heavy chain immunoglobulin polypeptide and the light chain immunoglobulin polypeptide of the Dectin-2 binding agent of any one of claims 1-12.
16. A vector comprising the nucleic acid sequence of any one of claims 13-15.

17. An isolated cell comprising the nucleic acid of any one of claims 13-15, optionally in a vector.
18. A method of providing a Dectin-2 binding agent of any of claims 1-12, the method comprising expressing in a cell *in vitro* one or more nucleic acids encoding the immunoglobulin heavy and light chain polypeptides thereof.
19. A composition comprising the Dectin-2 binding agent of any one of claims 1-12 or nucleic acid of any one of claims 13-15, optionally in a vector, and a pharmaceutically acceptable carrier.
20. The Dectin-2 binding agent of any one of claims 1-12 or conjugate comprising same, or the composition of claim 19, for use as a medicament for treating a disease, disorder, or condition in a mammal that is responsive to Dectin-2 inhibition or binding.
21. The Dectin-2 binding agent or composition of claim 20, wherein the disease, disorder, or condition is cancer.
22. The Dectin-2 binding agent of any one of claims 1-12 or the composition of claim 19 for use as a medicament for enhancing an immune response in a mammal.
23. The Dectin-2 binding agent for use according to claim 22, wherein the immune response is an anti-tumor immune response.
24. A method for treating a disease, disorder, or condition in a mammal that is responsive to Dectin-2 binding or inhibition, the method comprising administering the Dectin-2 binding agent of any one of claims 1-12 or conjugate comprising same, or the composition of claim 19, to the mammal.
25. The method of claim 24, wherein the disease, disorder, or condition is cancer.
26. A hybridoma or cell line that expresses a Dectin-2 binding agent of any of claims 1-12.
27. A method of stimulating an antigen presenting cell (APC), the method comprising contacting an APC with a Dectin-2 binding agent of claims 1-12 at a dose and for

a period of time sufficient to enhance Dectin-2 signaling in the APC, thereby generating a stimulated APC.

28. The method according to claim 27, wherein the APC is a cell of myeloid lineage.

29. The method according to claim 28, wherein the myeloid cell is a monocyte, macrophage, or a dendritic cell.

30. The method according to claims 27-29, wherein the stimulated APC produces at least one pro-inflammatory cytokine and/or exhibits increased phagocytosis as compared to an APC that has not been contacted by a Dectin-2 binding agent.

31. The method according to claim 30, wherein the at least one pro-inflammatory cytokine is selected from the group consisting of $\text{TNF}\alpha$, $\text{IL-1}\beta$, IL-2, IL-6, IL-23p19, $\text{IFN}\gamma$, IL-12p40, and IL-12p70.

32. The method according to any of claims 27-31, comprising contacting the stimulated APC with a cancer antigen to produce an antigen-contacted APC.

33. The method according to any of claims 28-32, wherein the cancer antigen is present in a cancer cell lysate or is part of a cancer cell.