

CLAIMS

1. A heterodimeric antibody comprising:

- a) a CD3 binding domain;
- b) a CD20 binding domain; and
- c) a first Fc domain and a second Fc domain;

wherein said CD20 binding domain comprises a heavy variable domain comprising a VHCDR1 of SEQ ID NO:431 or SEQ ID NO:422, a VHCDR2 of SEQ ID NO:432 or SEQ ID NO:423, and a VHCDR3 of SEQ ID NO:433 or SEQ ID NO:424; and a variable light domain comprising a VLCDR1 of SEQ ID NO:435 or SEQ ID NO:426, a VLCDR2 of SEQ ID NO:436 or SEQ ID NO:427, and a VLCDR3 of SEQ ID NO:437 or SEQ ID NO:428.

2. The heterodimeric antibody of claim 1, wherein said heavy variable domain comprises a VHCDR1 of SEQ ID NO:431, a VHCDR2 of SEQ ID NO:432, and a VHCDR3 of SEQ ID NO:433; and said variable light domain comprising a VLCDR1 of SEQ ID NO:435, a VLCDR2 of SEQ ID NO:436, and a VLCDR3 of SEQ ID NO:437.

3. The heterodimeric antibody of claim 1 or 2, wherein said CD3 binding domain comprises a VH comprising VHCDR1 selected from SEQ ID NO: 2, 11, 20, 29, 38 and 47, a VHCDR2 selected from SEQ ID NO: 3, 12, 21, 30, 39 and 48, and VHCDR3 selected from SEQ ID NO: 4, 13, 22, 31, 40 and 49; and a VL comprising a VLCDR1 selected from SEQ ID NO: 6, 15, 24, 33, 42 and 51, a VLCDR2 selected from SEQ ID NO: 7, 16, 25, 34, 43 and 52, and a VLCDR3 selected from SEQ ID NO: 8, 17, 26, 35, 44 and 53.

4. The heterodimeric antibody of claim 3, wherein said CD3 binding domain comprises a VH comprising VHCDR1 of SEQ ID NO: 2, a VHCDR2 of SEQ ID NO: 3, and VHCDR3 of SEQ ID NO: 4; and a VL comprising a VLCDR1 of SEQ ID NO: 6, a VLCDR2 of SEQ ID NO: 7, and a VLCDR3 of SEQ ID NO: 8.

5. The heterodimeric antibody of claim 1, wherein said heavy variable domain comprises SEQ ID NO:421.

6. The heterodimeric antibody of any one of claims 1 and 5, wherein said variable light domain comprises SEQ ID NO:425.

7. The heterodimeric antibody of any one of claims 1-4, wherein said heavy variable domain comprises SEQ ID NO:430.

8. The heterodimeric antibody of any one of claims 1-4 and 7, wherein said variable light domain comprises SEQ ID NO:434.
9. The heterodimeric antibody of claim 1, comprising an HC1 (Fab-Fc), an HC2 (scFv-Fc) and an LC of FIG. 74.
10. The heterodimeric antibody of claim 1, comprising an HC1 (Fab-Fc), an HC2 (scFv-Fc) and an LC selected from one of FIGs. 87, 88, and 90.
11. The heterodimeric antibody of claim 1, comprising an HC1 (Fab-Fc), an HC2 (scFv-Fc) and an LC selected from one of FIGs. 91-105.
12. The heterodimeric antibody of claim 1, wherein the Fc domains comprise an ablation variant of Fig 31.
13. The heterodimeric antibody of claim 1, wherein the first or second Fc domain comprises a pl variant of FIG 30.
14. The heterodimeric antibody of claim 1, wherein the first and second Fc domain comprise a set of amino acid substitutions of figure 29.
15. The heterodimeric antibody of claim 1, wherein the first and second Fc domain have a set of amino acid substitutions selected from the group consisting of: L368D/K370S : S364K; L368D/K370S : S364K/E357L; L368D/K370S : S364K/E357Q; T411E/K360E/Q362E : D401K; L368E/K370S : S364K; K370S : S364K; L368E/K370S : S364K/E357Q; K370S : S364K/E357Q;; L368E/K370S : S364K/E357Q; and K370S : S364K/E357Q
16. The heterodimeric antibody of claim 1, wherein said first Fc domain comprises the amino acid substitutions S364K/E357Q and said second Fc domain comprises the amino acid substitutions L368D/K370S.
17. The heterodimeric antibody of claim 1, wherein said second Fc domain comprises the amino acid substitutions N208D/Q295E/N384D/Q418E/N421D.
18. The heterodimeric antibody of claim 1, wherein said first and second Fc domains each comprise the amino acid substitutions E233P/L234V/L235A/G236del/S267K.

19. The heterodimeric antibody of claim 1, wherein said CD3 binding domain is a scFv that comprises a linker selected from FIG 33.
20. The heterodimeric antibody of claim 1, wherein the scFv comprises a linker (SGKPG)*4.
21. A composition comprising:
 - a) a first nucleic acid encoding the CD3 binding domain and the first Fc domain according to any of claims 1-20;
 - b) a second nucleic acid encoding the heavy variable domain and the second Fc domain according to any of claims 1-20; and
 - c) a third nucleic acid encoding the variable light chain according to any of claims 1-20.
22. A composition comprising:
 - a) a first expression vector comprising said first nucleic acid of claim 21;
 - b) a second expression vector comprising said second nucleic acid of claim 21; and
 - c) a third expression vector comprising said third nucleic acid of claim 21.
23. A cell comprising:
 - a) a first nucleic acid encoding the CD3 binding domain and the first Fc domain according to any of claims 1-20;
 - b) a second nucleic acid encoding the heavy variable domain and the second Fc domain according to any of claims 1-20; and
 - c) a third nucleic acid encoding the variable light chain according to any of claims 1-20.
24. A cell comprising the composition of claim 21 or 22.
25. A cell expressing the heterodimeric antibody of any of claims 1-20.
26. A method of making a heterodimeric antibody comprising culturing the cell of any of claims 23-25 and isolating said heterodimeric antibody.
27. A pharmaceutical composition comprising the heterodimeric antibody of any one of claims 1-20.
28. The heterodimeric antibody of any one of claims 1-20 or the pharmaceutical composition of claim 27 for use in treatment of hematopoietic malignancies.

29. The heterodimeric antibody of any one of claims 1-20 or pharmaceutical composition of claim 27 for use in treatment of a cancer selected from a group consisting of: B cell lymphomas and leukemias, non-Hodgkin's lymphoma (NHL), Burkitt's lymphoma (BL), multiple myeloma (MM), B chronic lymphocytic leukemia (B-CLL), B and T acute lymphocytic leukemia (ALL), T cell lymphoma (TCL), acute myeloid leukemia (AML), hairy cell leukemia (HCL), Hodgkin's Lymphoma (HL), chronic lymphocytic leukemia (CLL), non-Hodgkin's lymphoma, and chronic myeloid leukemia (CML).