## CLAIMS

1. An isolated antibody molecule capable of binding to FGF23, comprising:

(a) a heavy chain variable region (VH) comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 59, an LCDR2 amino acid sequence of SEQ ID NO: 69, and an LCDR3 amino acid sequence of SEQ ID NO: 73;

(b) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 67, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(c) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 49, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 67, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(d) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 57; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 67, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(e) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 50, and an HCDR3 amino acid sequence of SEQ ID NO: 54; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 67, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(f) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 69, and an LCDR3 amino acid sequence of SEQ ID NO: 89;

(g) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 49, and an HCDR3 amino acid sequence of SEQ ID NO: 55; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 69, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(h) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 59, an LCDR2 amino acid sequence of SEQ ID NO: 70, and an LCDR3 amino acid sequence of SEQ ID NO: 73;

(i) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 59, an LCDR2 amino acid sequence of SEQ ID NO: 68, and an LCDR3 amino acid sequence of SEQ ID NO: 73;

(j) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 48, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 67, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(k) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 59, an LCDR2 amino acid sequence of SEQ ID NO: 70, and an LCDR3 amino acid sequence of SEQ ID NO: 74;

(l) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID NO: 61, an LCDR2 amino acid sequence of SEQ ID NO: 70, and an LCDR3 amino acid sequence of SEQ ID NO: 73; or

(m) a VH comprising an HCDR1 amino acid sequence of SEQ ID NO: 41, an HCDR2 amino acid sequence of SEQ ID NO: 46, and an HCDR3 amino acid sequence of SEQ ID NO: 53; and a light chain variable region (VL) comprising an LCDR1 amino acid sequence of SEQ ID

NO: 59, an LCDR2 amino acid sequence of SEQ ID NO: 70, and an LCDR3 amino acid sequence of SEQ ID NO: 73.

2. An isolated antibody molecule capable of binding to FGF23, comprising a heavy chain variable region (VH) and a light chain variable region (VL), wherein the VH comprises an HCDR1 amino acid sequence of any of SEQ ID NOs: 39-43 or 110; an HCDR2 amino acid sequence of any of SEQ ID NOs: 44-52; and an HCDR3 amino acid sequence of any of SEQ ID NOs: 53-57; and the VL comprises an LCDR1 amino acid sequence of any of SEQ ID NOs: 58-63 and 109, an LCDR2 amino acid sequence of any of SEQ ID NOs: 64-72, and an LCDR3 amino acid sequence of any of SEQ ID NOs: 73-89.

3. The antibody molecule of claim 1 or 2, which comprises a VH comprising an amino acid sequence (1) at least 85%, 90%, or 95% identical to any of SEQ ID NOs: 1-13, 90, or 91; or (2) of any of SEQ ID NOs: 1-13, 90, or 91.

4. The antibody molecule of any of claims 1-3, which comprises a VL comprising an amino acid sequence (1) at least 85%, 90%, or 95% identical to any of SEQ ID NOs: 14-38 or 92-96, or (2) of any of SEQ ID NOs: 14-38 or 92-96.

5. The antibody molecule of claim 1, which comprises (1) a VH comprising an amino acid sequence at least 85%, 90%, or 95% identical to any of SEQ ID NOs: 1-13, 90, or 91 and a VL comprising an amino acid sequence at least 85%, 90%, or 95% identical to any of SEQ ID NOs: 14-38 or 92-96; or (2) a VH comprising an amino acid sequence of any of SEQ ID NOs: 1-13, 90, or 91 and a VL comprising an amino acid sequence of any of SEQ ID NOs: 14-38 or 92-96.

6. The antibody molecule of any of claims 1-5, which comprise:

(1) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 34;

(2) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 20;

(3) a VH comprising an amino acid sequence of SEQ ID NO: 8 and a VL comprising an amino acid sequence of SEQ ID NO: 19;

(4) a VH comprising an amino acid sequence of SEQ ID NO: 9 and a VL comprising an amino acid sequence of SEQ ID NO: 19;

(5) a VH comprising an amino acid sequence of SEQ ID NO: 11 and a VL comprising an amino acid sequence of SEQ ID NO: 20;

(6) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 28;

(7) a VH comprising an amino acid sequence of SEQ ID NO: 13 and a VL comprising an amino acid sequence of SEQ ID NO: 25;

(8) a VH comprising an amino acid sequence of SEQ ID NO: 13 and a VL comprising an amino acid sequence of SEQ ID NO: 25;

(9) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 37;

(10) a VH comprising an amino acid sequence of SEQ ID NO: 5 and a VL comprising an amino acid sequence of SEQ ID NO: 19;

(11) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 36;

(12) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 94;

(13) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 95; or,

(14) a VH comprising an amino acid sequence of SEQ ID NO: 7 and a VL comprising an amino acid sequence of SEQ ID NO: 96.

7. The antibody molecule of any of the preceding claims, which comprises an antigen-binding fragment, such as an antigen-binding fragment comprising Fab, $F(ab')_2$, Fv, scFv, or $sc(Fv)_2$.

8. The antibody molecule of any of the preceding claims, which comprises:

(1) a light chain constant region chosen from the light chain constant regions of kappa or lambda;

(2) a heavy chain constant region chosen from the heavy chain constant regions of IgG1, IgG2, IgG3, IgG4, or a chimera of two or more isotypes (*e.g.* IgG2 and IgG4), and a light chain constant region chosen from the light chain constant regions of kappa or lambda;

(3) a heavy chain constant region chosen from the heavy chain constant regions of IgG1, IgG4, or a chimera of IgG2 and IgG4 (*e.g.* "IgG2/4"), and optionally, wherein the heavy chain constant region comprises one or more amino acid modifications in the hinge, CH2, and/or CH3 region (*e.g.*, IgG1-YTE, IgG4-YTE or IgG2/4-YTE); and/or,

(4) an Fc region.

9. The antibody molecule of any of the preceding claims, wherein said antibody molecule is a humanized antibody molecule; a monoclonal antibody molecule, a synthetic antibody molecule, and/or a monospecific antibody molecule.

10. The antibody molecule of any of the preceding claims, wherein the FGF23 is a human FGF23.

11. The antibody molecule of any of the preceding claims, which:

(1) binds to human FGF23 at an $EC_{50}$ of less than 0.04 µg/ml (*e.g.*, less than about 0.04, 0.03, 0.029, 0.028, 0.027, 0.026, 0.025, 0.024, 0.023, 0.022, or 0.021 µg/ml), *e.g.*, as determined by ELISA;

(2) binds to human FGF23 at an $EC_{50}$ of between 0.01 µg/ml and 0.04 µg/ml (*e.g.*, between 0.02 µg/ml and 0.04 µg/ml, between 0.02 µg/ml and 0.03 µg/ml, between 0.02 µg/ml and 0.025 µg/ml, or between 0.025 µg/ml and 0.03 µg/ml), *e.g.*, as determined by ELISA;

(3) inhibits cell proliferation at an $IC_{50}$ of less than 10 µg/ml (*e.g.*, less than about 10, 9, 8, 7, 6, 5, 4, 3, 2.8, 2.5, 2, 1.7, 1.6, 1.5, 1.4, 1.3, 1, 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, or 0.1 µg/ml), *e.g.*, as determined by a cell-based assay, *e.g.*, as described in Example 2;

(4) inhibits cell proliferation at an $IC_{50}$ of between 0.1 µg/ml and 3 µg/ml (*e.g.*, between 0.1 µg/ml and 0.3 µg/ml, between 0.3 µg/ml and 0.6 µg/ml, between 0.6 µg/ml and 1 µg/ml, between 1 µg/ml and 2 µg/ml, or between 2 µg/ml and 3 µg/ml) as determined by a cell-based assay, *e.g.*, as described in Example 2; and/or,

(5) binds to human FGF23 comprising the amino acid sequence of SEQ ID NO: 82.

12. The antibody molecule of any of the preceding claims, wherein LCDR1, LCDR2, LCDR3, HCDR1 and HCDR2 belong to Chothia CDR canonical classes 2, 1, 3, 1 and 3, respectively.

13. An antibody molecule that competes for binding to FGF23 with an antibody molecule of any of the preceding claims.

14. An antibody molecule that binds to the same or overlapping epitope as the epitope recognized by an antibody molecule of any of the preceding claims.

15. A pharmaceutical composition comprising the isolated antibody molecule of any of the preceding claims and a pharmaceutically acceptable carrier, excipient or stabilizer.

16. An isolated nucleic acid encoding the VH, VL, or both, of the antibody molecule of any of claims 1-14.

17. The isolated nucleic acid of claim 16, wherein the nucleic acid comprises:

(a) the nucleic acid sequence of SEQ ID NO: 111 and/or the nucleic acid sequence of SEQ ID NO: 112;

(b) the nucleic acid sequence of SEQ ID NO: 97 and/or the nucleic acid sequence of SEQ ID NO: 98;

(c) the nucleic acid sequence of SEQ ID NO: 99 and/or the nucleic acid sequence of SEQ ID NO: 100;

(d) the nucleic acid sequence of SEQ ID NO: 101 and/or the nucleic acid sequence of SEQ ID NO: 102;

(e) the nucleic acid sequence of SEQ ID NO: 103 and/or the nucleic acid sequence of SEQ ID NO: 104;

(f) the nucleic acid sequence of SEQ ID NO: 105 and/or the nucleic acid sequence of SEQ ID NO: 106;

(g) the nucleic acid sequence of SEQ ID NO: 107 and/or the nucleic acid sequence of SEQ ID NO: 108;

(h) the nucleic acid sequence of SEQ ID NO: 113 and/or the nucleic acid sequence of SEQ ID NO: 114;

(i) the nucleic acid sequence of SEQ ID NO: 115 and/or the nucleic acid sequence of SEQ ID NO: 116;

(j) the nucleic acid sequence of SEQ ID NO: 117 and/or the nucleic acid sequence of SEQ ID NO: 118;

(k) the nucleic acid sequence of SEQ ID NO: 119 and/or the nucleic acid sequence of SEQ ID NO: 120;

(l) the nucleic acid sequence of SEQ ID NO: 121 and/or the nucleic acid sequence of SEQ ID NO: 122; or

(m) the nucleic acid sequence of SEQ ID NO: 123 and/or the nucleic acid sequence of SEQ ID NO: 124.

18. An expression vector comprising the nucleic acid of claim 16 or 17.

19. A host cell comprising the nucleic acid of claim 16 or 17 or the vector of claim 18.

20. A method of producing an antibody molecule, comprising culturing the host cell of claim 19 under conditions suitable for gene expression.

21. An *in vitro* method of inhibiting FGF23, comprising contacting FGF23 with an antibody molecule of any of claims 1-14, or a pharmaceutical composition of claim 15.

22. Use of an antibody molecule of any of claims 1-14, or a pharmaceutical composition of claim 15, in the manufacture of a medicament for treating or preventing a disorder.

23. The use of claim 22, wherein the disorder is a FGF23-associated disorder, optionally, wherein the FGF23-associated disorder is chosen from X-linked hypophosphatemic rickets (XLH), autosomal recessive hypophosphatemic rickets (ARHR) (*e.g.*, ARHR 1 or ARHR2), autosomal dominant hypophosphatemic rickets (ADHR), osteoglophonic dysplasia, Jansen-type metaphyseal chondrodysplasia, hypophosphatemia with dental abnormality and ectopic calcification, McCune-Albright syndrome, epidermal nevus syndrome (ENS), or tumor-induced osteomalacia (TIO).

24. The use of claim 22, wherein the antibody molecule is to be administered to the subject at a dose between 0.1 mg/kg and 50 mg/kg.

25. The use of claim 22, further comprising that a second therapeutic agent or modality is to be administered, preferably before, during, or after the antibody molecule is administered.

26. A method of detecting FGF23, comprising (i) contacting a sample with an antibody molecule of any of claims 1-14 under conditions that allow interaction of the antibody molecule and FGF23 to occur, and (ii) detecting formation of a complex between the antibody molecule and the sample.

27. The method of claim 26, further comprising contacting a reference with an antibody molecule of any of claims 1-14 under conditions that allow interaction of the antibody molecule and FGF23 to occur, and (ii) detecting formation of a complex between the antibody molecule and the sample.

28. An antibody molecule of any of claims 1-14, or a pharmaceutical composition of claim 15, for use in treating a disorder in a subject.