

CLAIMS

What is claimed is:

1. An anti-TALEN antibody comprising a variable heavy chain amino acid sequence that is at least 85% identical to SEQ ID NO: 3 and a variable light chain amino acid
5 sequence that is at least 85% identical to SEQ ID NO: 7.
2. The anti-TALEN antibody of claim 1, wherein the antibody is humanized.
3. The anti-TALEN antibody of claim 1 or 2, wherein the antigen binding molecule is
10 selected from the group consisting of an antibody, an scFv, a Fab, a Fab', a Fv, a F(ab')₂, a dAb, a human antibody, a humanized antibody, a chimeric antibody, a monoclonal antibody, a polyclonal antibody, a recombinant antibody, an IgE antibody, an IgD antibody, an IgM antibody, an IgG1 antibody, an IgG1 antibody having at least one mutation in the hinge region, an IgG2 antibody an IgG2 antibody having at least
15 one mutation in the hinge region, an IgG3 antibody, an IgG3 antibody having at least one mutation in the hinge region, an IgG4 antibody, an IgG4 antibody having at least one mutation in the hinge region, an antibody comprising at least one non-naturally occurring amino acid, and any combination thereof.
- 20 4. The anti-TALEN antibody of any one of claims 1-3, wherein the antibody comprises a variable heavy chain (HC) selected from the group consisting of SEQ ID NOs: 3-6.
5. The anti-TALEN antibody of any one of the preceding claims, comprising a heavy chain CDR1 selected from the group consisting of SEQ ID NOs: 12-14.
25
6. The anti-TALEN antibody of any one of the preceding claims, comprising a heavy chain CDR2 selected from the group consisting of SEQ ID NOs: 15-20.
7. The anti-TALEN antibody of any one of the preceding claims, comprising a heavy
30 chain CDR3 comprising SEQ ID NO: 21.

8. The anti-TALEN antibody of any one of the preceding claims, wherein the heavy chain comprises a heavy chain CDR1, a heavy chain CDR2, and a heavy chain CDR3, each CDR comprising an amino acid sequence shown in Table 1c.
- 5 9. An anti-TALEN antibody comprising a VH amino acid sequence that is at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98%, at least about 99%, or about 100% identical to a VH of an antigen binding molecule of claim 4.
- 10 10. The anti-TALEN antibody any one of claims 1-9, wherein the isolated antibody comprises a light chain variable region (VL) sequence selected from the group consisting of SEQ ID NOs: 7-11.
11. The anti-TALEN antibody of claim 10, comprising a light chain CDR1 comprising
15 SEQ ID NOs: 22.
12. The anti-TALEN antibody of claim 10, comprising a light chain CDR2 selected from the group consisting of SEQ ID NO: 23-25.
- 20 13. The anti-TALEN antibody of claim 10, comprising a light chain CDR3 selected from the group consisting of SEQ ID NOs: 26-28.
14. The anti-TALEN antibody of claim 10, wherein the light chain comprises a light chain CDR1, a light chain CDR2 and a light chain CDR3, each CDR comprising an amino
25 acid sequence in Table 1d.
15. An anti-TALEN antibody, comprising a VL amino acid sequence that is at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98%, at least about 99%, or about 100% identical to a VL of an antigen binding molecule of
30 claim 10.

16. An anti-TALEN antibody, comprising
- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 12;
 - (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 15;
 - (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
 - 5 (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
 - (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 23; and
 - (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 26.
17. The anti-TALEN antibody of claim 16, comprising
- (a) a VH comprising the amino acid sequence of SEQ ID NO: 3; and
 - 10 (b) a VL comprising the amino acid sequence of SEQ ID NO: 7.
18. An anti-TALEN antibody, comprising
- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 12;
 - (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 16;
 - (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
 - 15 (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
 - (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 24; and
 - (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 27.
19. The anti-TALEN antibody of claim 18, comprising
- (a) a VH comprising the amino acid sequence of SEQ ID NO: 3; and
 - 20 (b) a VL comprising the amino acid sequence of SEQ ID NO: 8.
20. An anti-TALEN antibody, comprising
- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 13;
 - (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 16;
 - (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
 - 25 (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
 - (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 25; and
 - (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 26.
21. The anti-TALEN antibody of claim 20, comprising
- (a) a VH comprising the amino acid sequence of SEQ ID NO: 4; and
 - 30 (b) a VL comprising the amino acid sequence of SEQ ID NO: 9.

22. An anti-TALEN antibody, comprising

- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 12;
- (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 15;
- (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
- 5 (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
- (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 24; and
- (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 28.

23. The anti-TALEN antibody of claim 22, comprising

- (a) a VH comprising the amino acid sequence of SEQ ID NO: 5; and
- 10 (b) a VL comprising the amino acid sequence of SEQ ID NO: 10.

24. An anti-TALEN antibody, comprising

- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 12;
- (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 17;
- (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
- 15 (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
- (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 24; and
- (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 27.

25. The anti-TALEN antibody of claim 24, comprising

- (a) a VH comprising the amino acid sequence of SEQ ID NO: 6; and
- 20 (b) a VL comprising the amino acid sequence of SEQ ID NO: 11.

26. An anti-TALEN antibody, comprising

- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 12;
- (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 15;
- 25 (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
- (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
- (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 24; and
- (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 27.

27. The anti-TALEN antibody of claim 24, comprising

- (a) a VH comprising the amino acid sequence of SEQ ID NO: 3; and
- (b) a VL comprising the amino acid sequence of SEQ ID NO: 8.

5 28. An anti-TALEN antibody, comprising

- (a) a VH CDR1 comprising the amino acid sequence of SEQ ID NO: 12;
- (b) a VH CDR2 comprising the amino acid sequence of SEQ ID NO: 16;
- (c) a VH CDR3 comprising the amino acid sequence of SEQ ID NO: 21;
- (d) a VL CDR1 comprising the amino acid sequence of SEQ ID NO: 22;
- 10 (e) a VL CDR2 comprising the amino acid sequence of SEQ ID NO: 25; and
- (f) a VL CDR3 comprising the amino acid sequence of SEQ ID NO: 26.

29. The anti-TALEN antibody of claim 24, comprising

- (a) a VH comprising the amino acid sequence of SEQ ID NO: 4; and
- (b) a VL comprising the amino acid sequence of SEQ ID NO: 9.

15

30. The anti-TALEN antibody of any of claims 1-29, wherein the isolated antibody further comprises a detectable label.

31. The anti-TALEN antibody of claim 30, wherein the detectable label is selected from
20 the group consisting of a fluorescent label, a photochromic compound, a proteinaceous fluorescent label, a magnetic label, a radiolabel, and a hapten.

32. The anti-TALEN antibody of claim 31, wherein the fluorescent label is selected from
25 the group consisting of an Atto dye, an Alexafluor dye, quantum dots, Hydroxycoumarin, Aminocouramin, Methoxycourmarin, Cascade Blue, Pacific Blue, Pacific Orange, Lucifer Yellow, NBD, R-Phycoerythrin (PE), PE-Cy5 conjugates, PE-Cy7 conjugates, Red 613, PerCP, TruRed, FluorX, Fluorescein, BODIPY-FL, Cy2, Cy3, Cy3B, Cy3.5, Cy5, Cy5.5, Cy7, TRITC, X-Rhodamine, Lissamine Rhocamine B, Texas Red, Allophycocyanin (APC), APC-Cy7 conjugates, Indo-1, Fluo-3, Fluo-4,
30 DCFH, DHR, SNARF, GFP (Y66H mutation), GFP (Y66F mutation), EBFP, EBFP2, Azurite, GFPuv, T-Sapphire, Cerulean, mCFP, mTurquoise2, ECFP, CyPet, GFP

(Y66W mutation), mKeima-Red, TagCFP, AmCyan1, mTFP1, GFP (S65A mutation), Midorishi Cyan, Wild Type GFP, GFP (S65C mutation), TurboGFP, TagGFP, GFP (S65L mutation), Emerald, GFP (S65T mutation), EGFP, Azami Green, ZsGreen1, TagYFP, EYFP, Topaz, Venus, mCitrine, YPet, TurboYFP, ZsYellow1, Kusabira
 5 Orange, mOrange, Allophycocyanin (APC), mKO, TurboRFP, tdTomato, TagRFP, DsRed monomer, DsRed2 ("RFP"), mStrawberry, TurboFP602, AsRed2, mRFP1, J-Red, R-phycoerythrin (RPE), B-phycoerythrin (BPE), mCherry, HcRed1, Katusha, P3, Peridinin Chlorophyll (PerCP), mKate (TagFP635), TurboFP635, mPlum, and mRaspberry.

10

33. The anti-TALEN antibody of claim 32, wherein the fluorescent label is R-Phycoerythrin (PE) or Allophycocyanin (APC).

34. A composition comprising the anti-TALEN antibody of any one of claims 1-33 and a
 15 pharmaceutically acceptable carrier or vehicle.

35. A polynucleotide encoding the heavy chain of an anti-TALEN antibody of any one of claims 1-29.

20 36. A polynucleotide encoding the light chain of an anti-TALEN antibody of any one of claims 1-29.

37. A vector comprising the polynucleotide of claim 35 or claim 36.

25 38. A cell comprising one or both of the vectors of claim 37.

39. The cell of claim 38, wherein the cell comprises a cell selected from the group consisting of a CHO cell, a Sp2/0 cell, a rabbit cell and an *E. coli* cell.

30 40. A method of making an anti-TALEN antibody of claims 1-29 comprising incubating the cell of claim 39 under suitable conditions.

41. A method of determining the presence or absence of a TALEN protein in a sample, comprising contacting the sample with an anti-TALEN antibody conjugated to a detectable label and determining the presence or absence of the TALEN protein in the sample.
- 5
42. The method of claim 41, wherein the anti-TALEN antibody comprises an antibody of any one of claims 1-33 or a humanized form thereof.
43. The method of claims 41 or 42, wherein the sample is a tissue sample, a blood sample,
- 10 a formalin-fixed sample, a tissue grown *ex vivo* or cell culture media.