WHAT IS CLAIMED IS:

1. A humanized antibody or antigen-binding fragment thereof that specifically binds to CD37 for use in the treatment of an autoimmune or inflammatory disease wherein said humanized antibody or fragment thereof is capable of inducing apoptosis *in vitro* in the absence of a cross-linking agent.

2. A humanized antibody or antigen-binding fragment thereof that specifically binds to CD37 for use in a method for depleting non-cancerous B-cells wherein said humanized antibody or fragment thereof is capable of inducing apoptosis *in vitro* in the absence of a cross-linking agent.

3. The humanized antibody or antigen-binding fragment thereof of claim 1 or 2, wherein said antibody or fragment retains the ability of at least its chimeric or murine parent antibody to induce apoptosis of a cell expressing CD37 *in vitro* in the absence of cross-linking agents.

4. The humanized antibody or antigen-binding fragment thereof of any one of claims 1-3, wherein the antibody is a resurfaced antibody.

5. An antibody or antigen-binding fragment thereof that specifically binds to human CD37 and macaque CD37 for use in the treatment of an autoimmune or inflammatory disease.

6. An antibody or antigen-binding fragment thereof that specifically binds to CD37 for use in the treatment of an autoimmune or inflammatory disease, wherein the antibody or fragment binds to the same CD37 epitope as an antibody selected from the group consisting of:

(a) an antibody comprising the polypeptide of SEQ ID NO:57 and the polypeptide of SEQ ID NO:74;

(b) an antibody comprising the polypeptide of SEQ ID NO:63 and the polypeptide of SEQ ID NO:79;

(c) an antibody comprising the polypeptide of SEQ ID NO:65 and the polypeptide of SEQ ID NO:81;

(d) an antibody comprising the polypeptide of SEQ ID NO:67 and the polypeptide of SEQ ID NO:83;

(e) an antibody comprising the polypeptide of SEQ ID NO:69 and the polypeptide of SEQ ID NO:85; and

(f) an antibody comprising the polypeptide of SEQ ID NO:71 and the polypeptide of SEQ ID NO:87.

7. An antibody or antigen-binding fragment thereof that specifically binds to CD37 for use in the treatment of an autoimmune or inflammatory disease wherein the antibody or fragment comprises the polypeptide sequences of:

(a) SEQ ID NOs: 4, 5, and 6 and SEQ ID NOs: 28, 29, and 30;
(b) SEQ ID NOs: 7, 8, and 9 and SEQ ID NOs: 31, 32, and 33;
(c) SEQ ID NOs: 10, 11, and 12 and SEQ ID NOs: 34, 35, and 36;
(d) SEQ ID NOs: 13, 14, and 15 and SEQ ID NOs: 37, 38, and 39;
(e) SEQ ID NOs: 13, 14, and 15 and SEQ ID NOs: 37, 40, and 39;
(f) SEQ ID NOs: 16, 17, and 18 and SEQ ID NOs: 41, 42, and 43;
(g) SEQ ID NOs: 19, 20, and 21 and SEQ ID NOs: 44, 45, and 46;
(h) SEQ ID NOs: 19, 20, and 21 and SEQ ID NOs: 44, 47, and 46;
(i) SEQ ID NOs: 22, 23, and 24 and SEQ ID NOs: 48, 49, and 50;
(j) SEQ ID NOs: 22, 23, and 24 and SEQ ID NOs: 48, 51, and 50;
(k) SEQ ID NOs: 25, 26, and 27 and SEQ ID NOs: 52, 53, and 54;
(l) SEQ ID NOs: 171, 172, and 173 and SEQ ID NOs: 174, 175, and 176; or
(m) SEQ ID NOs: 171, 181, and 173 and SEQ ID NOs: 174, 175, and 176.

8. The antibody or antigen-binding fragment thereof of claim 6, wherein the antibody comprises the polypeptide sequences of:

(a) SEQ ID NO:57 and SEQ ID NO:74;
(b) SEQ ID NO:58 and SEQ ID NO:74;
(c) SEQ ID NO:63 and SEQ ID NO:79;
(d) SEQ ID NO:65 and SEQ ID NO:81;
(e) SEQ ID NO:67 and SEQ ID NO:83;
(f) SEQ ID NO:69 and SEQ ID NO:85; or

(g) SEQ ID NO:71 and SEQ ID NO:87.

9. An antibody or antigen-binding fragment thereof produced by a hybridoma selected from the group consisting of ATCC Deposit Designation PTA-10664, deposited with the ATCC on February 18, 2010, ATCC Deposit Designation PTA-10665, deposited with the ATCC on February 18, 2010, ATCC Deposit Deisgnation PTA-10666, deposited with the ATCC on February 18, 2010, ATCC Deposit Designation PTA-10667 deposited with the ATCC on February 18, 2010, ATCC Deposit Designation PTA-10668, deposited with the ATCC on February 18, 2010, ATCC Deposit Designation PTA-10669, deposited with the ATCC on February 18, 2010, and ATCC Deposit Designation PTA-10670, deposited with the ATCC on February 18, 2010 for use in the treatment of an autoimmune or inflammatory disease.

10. The antibody or antigen-binding fragment thereof of any one of claims 1-9, wherein said antibody or antigen-binding fragment is capable of inducing antibody dependent cell mediated cytotoxicity (ADCC).

11. An antibody or antigen-binding fragment thereof that specifically binds to CD37, wherein said antibody or fragment binds to the same CD37 epitope as an antibody comprising the polypeptide of SEQ ID NO:177 and the polypeptide of SEQ ID NO:178.

12. An antibody or antigen-binding fragment thereof that specifically binds to CD37, wherein said antibody or fragment comprises the sequences of SEQ ID NOs: 171, 172 or 181, and 173 and SEQ ID NOs: 174, 175, and 176.

13. The antibody or antigen-binding fragment of claim 12, wherein said antibody or fragment comprises the polypeptide sequences of SEQ ID NO:177 and SEQ ID NO:178.

14. The antibody or antigen-binding fragment thereof of any one of claims 1-13, wherein the antibody or antigen-binding fragment thereof is linked via a linker (L) to a cytotoxic agent (C) to form an immunoconjugate.

15. The antibody or antigen-binding fragment thereof of claim 14, wherein the immunoconjugate comprises 2-6 (C).

16. The antibody or antigen-binding fragment thereof of claim 14 or 15, wherein said linker is a cleavable linker, a non-cleavable linker, a hydrophilic linker, or a dicarboxylic acid based linker.

17. The antibody or antigen-binding fragment thereof of claim 14 or 15, wherein said linker is N-succinimidyl 4-(2-pyridyldithio)pentanoate (SPP); N-succinimidyl 4-(2-pyridyldithio)butanoate (SPDB) or N-succinimidyl 4-(2-pyridyldithio)-2-sulfobutanoate (sulfo-SPDB); N-succinimidyl 4-(maleimidomethyl) cyclohexanecarboxylate (SMCC); N-sulfosuccinimidyl 4-(maleimidomethyl) cyclohexanecarboxylate (sulfoSMCC); N-succinimidyl-4-(iodoacetyl)-aminobenzoate (SIAB); or N-succinimidyl-[(N-maleimidopropionamido)-tetraethyleneglycol] ester (NHS-PEG4-maleimide).

18. The antibody or antigen-binding fragment thereof of any one of claims 14-17, wherein said cytotoxic agent is a maytansinoid, maytansinoid analog, doxorubicin, a modified doxorubicin, benzodiazepine, taxoid, CC-1065, CC-1065 analog, duocarmycin, duocarmycin analog, calicheamicin, dolastatin, dolastatin analog, aristatin, tomaymycin derivative, a leptomycin derivative, or a prodrug of the agent.

19. The antibody or antigen-binding fragment thereof of claim 18, wherein said cytotoxic agent is a maytansinoid.

20. The antibody or antigen-binding fragment thereof of claim 19, wherein said cytotoxic agent is, N(2')-deacetyl-N(2')-(3-mercapto-1-oxopropyl)-maytansine (DM1) or N(2')-deacetyl-N(2')-(4-mercapto-4-methyl-1-oxopentyl)-maytansine (DM4).

21. The antibody or antigen-binding fragment of any one of claims 14-20, wherein the antibody or antigen-binding fragment comprises the polypeptide of SEQ ID NO:57 and the polypeptide of SEQ ID NO:74.

22. The antibody or antigen-binding fragment of claim 21, wherein (L) is SMCC.

23. The antibody or antigen-binding fragment of claim 21 or 22, wherein (C) is DM1 or DM4.

24. The antibody or antigen-binding fragment of claim 23, wherein (C) is DM1.

25. The antibody or antigen-binding fragment of any one of claims 14-20, wherein the antibody or antigen-binding fragment comprises the polypeptide of SEQ ID NO:65 and the polypeptide of SEQ ID NO:81.

26. The antibody or antigen-binding fragment of claim 25, wherein (L) is SMCC.

27. The antibody or antigen-binding fragment of claim 25 or 26, wherein (C) is DM1 or DM4.

28. The antibody or antigen-binding fragment of claim 27, wherein (C) is DM1.

29. The antibody or antigen-binding fragment thereof of any one of claims 1 and 3-28, wherein said autoimmune or inflammatory disease is rheumatoid arthritis, multiple sclerosis, type I diabetes mellitus, idiopathic inflammatory myopathy, systemic lupus erythematosus (SLE), myasthenia gravis, Grave's disease, dermatomyositis, polymyositis, Crohn's diasease, ulcerative colitis, gastritis, Hashimoto's thyroiditis, asthma, psoriasis, psoriatic arthritis, dertmatitis, systemic sclerodema and sclerosis, inflammatory bowel disease (IBD), respiratory distress syndrome, meningitis, encephalitis, uveitis, glmerulonephritis, eczema, atherosclerosis, leukocyte adhesion deficiency, Raynaud's syndrome, Sjögen's syndrome, Reiter's disease, Beheet's diasease, immune complex nephritis, IgA enphropathy, IgM polyneuropathies, immune-mediated thrombocytopenias, acute idiopathic thrombocytopenic purpura, chronic idiopathic thembocytopenic purpura, hemolytic anemia, myasthenia gravis, lupus nephritis, atopic dermatitis, pemphigus vulgaris, opsoclonus-myoclonus syndrome, pure red cell aplasia, mixed cryoglobulinemia, ankylosing spondylitis, hepatitis C-associated cryoglobulinemic vasculitis, chronic focal encephalitis, bullous pemphigoid, hemophilia A, membranoproliferative glomerulonephritis, adult and juvenile dermatomyositis, adult polymyositis, chronic urticaria, primary biliary cirrhosis, neuromyelitis optica, Graves' dysthyroid disease, bullous pemphigoid, membranoproliferative glomerulonephritis, Churg-Strauss syndrome, juvenile onset diabetes, hemolytic anemia, atopic dermatitis, systemic sclerosis, Sjögen's syndrome and glomerulonephritis, dermatomyositis, ANCA, aplastic anemia, autoimmune hemolytic anemia (AIHA), factor VIII deficiency, hemophilia A, autoimmune neutropenia, Castleman's syndrome, Goodpasture's syndrome, solid organ transplant rejection, graft versus host disease (GVHD), autoimmune hepatitis,

lymphoid interstitial pneumonitis, HIV, bronchiolitis obliterans (non-transplant), Guillain-Barre Syndrome, large vessel vasculitis, giant cell (Takayasu's) arteritis, medium vessel vasculitis, Kawasaki's Disease, polyarteritis nodosa. Wegener's granulomatosis, microscopic polyangiitis (MPA), Omenn's syndrome, chronic renal failure, acute infectious mononucleosis, HIV, or herpes virus associated diseases.

30. The antibody or antigen-binding fragment thereof of claim 29, wherein said autoimmune or inflammatory disease is multiple sclerosis.

31. The antibody or antigen-binding fragment thereof of claim 29, wherein said autoimmune or inflammatory disease is diabetes mellitus.

32. The antibody or antigen-binding fragment thereof of claim 29, wherein said autoimmune or inflammatory disease is rheumatoid arthritis.

WHAT IS CLAIMED IS:

1. The use of a humanized antibody or antigen-binding fragment thereof that specifically binds to CD37 in the manufacture of a medicament for the treatment of multiple sclerosis, diabetes mellitus, or rheumatoid arthritis, wherein said humanized antibody or fragment thereof retains the ability of at least its chimeric or murine parent antibody to induce apoptosis *in vitro* in the absence of an agent that crosslinks said antibody or fragment thereof.

2. The use of a humanized antibody or antigen-binding fragment thereof that specifically binds to CD37 in the manufacture of a medicament for depleting non-cancerous B-cells, wherein said humanized antibody or fragment thereof retains the ability of at least its chimeric or murine parent antibody to induce apoptosis *in vitro* in the absence of an agent that crosslinks said antibody or fragment thereof.

3. The use according to claim 1 or 2, wherein the antibody or antigen-binding fragment is resurfaced.

4. The use according to any one of claims 1-3, wherein the antibody or antigen-binding fragment thereof specifically binds to human CD37 and macaque CD37.

5. The use according to any one of claims 1-4, wherein the antibody or fragment comprises the polypeptide sequences of:

(a) SEQ ID NOs: 4, 5, and 6 and SEQ ID NOs: 28, 29, and 30;
(b) SEQ ID NOs: 10, 11, and 12 and SEQ ID NOs: 34, 35, and 36;
(c) SEQ ID NOs: 13, 14, and 15 and SEQ ID NOs: 37, 40, and 39;
(d) SEQ ID NOs: 16, 17, and 18 and SEQ ID NOs: 41, 42, and 43;
(e) SEQ ID NOs: 19, 20, and 21 and SEQ ID NOs: 44, 47, and 46;
(f) SEQ ID NOs: 22, 23, and 24 and SEQ ID NOs: 48, 51, and 50; or
(g) SEQ ID NOs: 25, 26, and 27 and SEQ ID NOs: 52, 53, and 54.

6. The use according to claim 5, wherein the antibody comprises the polypeptide sequences of:

(a) SEQ ID NO:57 and SEQ ID NO:74;
(b) SEQ ID NO:58 and SEQ ID NO:74;
(c) SEQ ID NO:63 and SEQ ID NO:79;
(d) SEQ ID NO:65 and SEQ ID NO:81;
(e) SEQ ID NO:67 and SEQ ID NO:83;
(f) SEQ ID NO:69 and SEQ ID NO:85; or
(g) SEQ ID NO:71 and SEQ ID NO:87.

7. The use according to any one of claims 1-6, wherein said antibody or antigen-binding fragment is capable of inducing antibody dependent cell mediated cytotoxicity (ADCC).

8. The use according to any one of claims 1-7, wherein said antibody or antigen-binding fragment thereof comprises a Fab, Fab', $F(ab')_2$, Fd, single chain Fv or scFv, disulfide linked Fv, V-NAR domain, IgNar, intrabody, IgGΔCH2, minibody, $F(ab')_3$, tetrabody, triabody, diabody, single-domain antibody, DVD-Ig, Fcab, mAb^2, $(scFv)_2$, or scFv-Fc.

9. The use according to any one of claims 1-8, wherein the antibody or antigen-binding fragment thereof is linked via a linker (L) to a cytotoxic agent (C) to form an immunoconjugate.

10. The use according to claim 9, wherein the immunoconjugate comprises 2-6 (C).

11. The use according to claim 9 or 10, wherein said linker is a cleavable linker, a non-cleavable linker, a hydrophilic linker, or a dicarboxylic acid based linker.

12. The use according to claim 9 or 10, wherein said linker is N-succinimidyl 4-(2-pyridyldithio)pentanoate (SPP); N-succinimidyl 4-(2-pyridyldithio)butanoate (SPDB) or N-succinimidyl 4-(2-pyridyldithio)-2-sulfobutanoate (sulfo-SPDB); N-succinimidyl 4-(maleimidomethyl) cyclohexanecarboxylate (SMCC); N-sulfosuccinimidyl 4-(maleimidomethyl) cyclohexanecarboxylate (sulfoSMCC); N-succinimidyl-4-(iodoacetyl)-aminobenzoate (SIAB); or N-succinimidyl-[(N-maleimidopropionamido)-tetraethyleneglycol] ester (NHS-PEG4-maleimide).

13. The use according to any one of claims 9-12, wherein said cytotoxic agent is a maytansinoid, maytansinoid analog, doxorubicin, a modified doxorubicin,

benzodiazepine, taxoid, CC-1065, CC-1065 analog, duocarmycin, duocarmycin analog, calicheamicin, dolastatin, dolastatin analog, auristatin, tomaymycin derivative, a leptomycin derivative, or a prodrug of the cytotoxic agent.

14. The use according to claim 13, wherein said cytotoxic agent is a maytansinoid.

15. The use according to claim 14 wherein said cytotoxic agent is N(2')-deacetyl-N(2')-(3-mercapto-1-oxopropyl)-maytansine (DM1) or N(2')-deacetyl-N(2')-(4-mercapto-4-methyl-1-oxopentyl)-maytansine (DM4).

16. The use according to any one of claims 9-15, wherein the antibody or antigen-binding fragment comprises the polypeptides of SEQ ID NOs: 4, 5, and 6 and SEQ ID NOs: 28, 29, and 30.

17. The use according to claim 16, wherein the antibody or antigen-binding fragment comprises the polypeptide of SEQ ID NO:57 and the polypeptide of SEQ ID NO:74.

18. The use according to claim 16 or 17, wherein (L) is SMCC.

19. The use according to any one of claims 16-18, wherein (C) is DM1 or DM4.

20. The use according to claim 19, wherein (C) is DM1.

21. The use according to any one of claims 9-15, wherein the antibody or antigen-binding fragment comprises the polypeptides of SEQ ID NOs: 13, 14, and 15 and SEQ ID NOs: 37, 40, and 39.

22. The use according to claim 21, wherein the antibody or antigen-binding fragment comprises the polypeptide of SEQ ID NO:65 and the polypeptide of SEQ ID NO:81.

23. The use according to claim 21 or 22, wherein (L) is SMCC.

24. The use according to any one of claims 21-23, wherein (C) is DM1 or DM4.

25. The use according to claim 24, wherein (C) is DM1.