We claim:

1. An isolated human antibody that binds specifically to nerve growth factor (NGF), wherein the antibody comprises a heavy chain variable region and a light chain variable region wherein the heavy chain variable region comprises the amino acid sequence set forth in SEQ ID NO: 10, or an antigen-binding fragment thereof and the light chain variable region comprises the amino acid sequence as set forth in SEQ ID NO: 12, or an antigen-binding fragment thereof.

2. The antibody of claim 1, wherein the antigen-binding fragment comprises SEQ ID NO: 14, SEQ ID NO: 18, SEQ ID NO: 22, SEQ ID NO: 16, SEQ ID NO: 20, and SEQ ID NO: 24.

3. An isolated human antibody that binds specifically to nerve growth factor (NGF), comprising:
   a. human heavy chain framework regions, a human heavy chain CDR1 region comprising SEQ ID NO: 22, a human heavy chain CDR2 region comprising SEQ ID NO: 18, and a human heavy chain CDR3 region, comprising SEQ ID NO: 14; and
   b. human light chain framework regions, a human light chain CDR1 region comprising SEQ ID NO: 24, a human light chain CDR2 region comprising SEQ ID NO: 20, and a human light chain CDR3 region comprising SEQ ID NO: 16.

4. An isolated human antibody that binds specifically to nerve growth factor (NGF), wherein the antibody comprises:
   (a) a heavy chain comprising SEQ ID NO: 40, SEQ ID NO: 41, SEQ ID NO: 42, or SEQ ID NO: 43; and
   (b) a light chain region comprising SEQ ID NO: 44.

5. An isolated human antibody that binds specifically to nerve growth factor (NGF), wherein the antibody comprises a light chain comprising SEQ ID NO: 44 and a heavy chain comprising SEQ ID NO: 40.

6. The antibody according to any one of claims 1-5, wherein the antibody dissociates from a human NGF polypeptide with a K_D of about 1 x 10^{-9} M to 1 x 10^{-11} M and neutralizes human NGF bioactivity in a standard *in vitro* assay with an IC_{50} of about 1 x 10^{-8} M to 0.2 x 10^{-9} M.

7. The antibody of claim 6, wherein the antibody dissociates from a human NGF polypeptide with a K_D of about 1 x 10^{-10} M to 1 x 10^{-11} Mand neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 1 x 10^{-9} M to 1 x 10^{-9} M.

8. The antibody according to any one of claims 1-7, wherein the heavy chain and light chain are connected by a flexible linker to form a single-chain antibody.

9. The antibody of claim 8 selected from the group consisting of: a single-chain Fv antibody, a Fab antibody, Fab' antibody, and a $(Fab')_2$ antibody.

10. The antibody according to any one of claims 1-9, wherein the antibody is fully human antibody.

11. The antibody according to any one of claims 1-10, wherein the antibody inhibits NGF signaling.

12. The pharmaceutically effective amount of the antibody of claim 11 for use in the treatment of a condition caused by increased expression of NGF or increased sensitivity to NGF in a patient.

13. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a therapeutically effective amount of the antibody of claims 1-12.

14. The pharmaceutical composition of claim 13 for use in the treatment of a condition caused by increased expression of NGF or increased sensitivity to NGF in a patient, comprising administering to a patient.

15. Use of the pharmaceutical composition of claim 13 in the manufacture of a medicament for the treatment of a condition caused by increased expression of NGF or increased sensitivity to NGF in a patient.

16. A method for detecting NGF in a biological sample comprising:
    a. contacting the sample with the antibody according to any one of claims 1-11, under conditions that allow for binding of the antibody to NGF; and
    b. measuring the level of bound antibody in the sample.

17. An isolated nucleic acid molecule that encodes the antibody according to any one of claims 1-11.

18. An isolated host cell comprising the nucleic acid of claim 17.

19. An isolated cell line that produces an antibody according to any one of claims 1-11.

20. The use according to claim 12, wherein the condition is acute pain, dental pain, pain from trauma, surgical pain, pain resulting from amputation or abscess, causalgia, demyelinating diseases, trigeminal neuralgia, cancer, chronic alcoholism, stroke, thalamic pain syndrome, diabetes, acquired immune deficiency syndrome ("AIDS"), toxins, chemotherapy, general headache, migraine, cluster headache, mixed-vascular or non-vascular syndromes, tension headache, general inflammation, arthritis, rheumatic diseases, lupus, osteoarthritis, fibromyalgia, inflammatory bowel disorders, irritable bowel syndrome, inflammatory eye disorders, inflammatory or unstable bladder disorders, psoriasis, skin complaints with inflammatory components, sunburn, carditis, dermatitis, myositis, neuritis, collagen vascular diseases, chronic inflammatory conditions, inflammatory pain and associated hyperalgesia and allodynia, neuropathic pain and associated hyperalgesia or allodynia, diabetic neuropathy pain, causalgia, sympathetically maintained pain, deafferentation syndromes, asthma, epithelial tissue damage or dysfunction, herpes simplex, disturbances of visceral motility at respiratory, genitourinary, gastrointestinal or vascular regions, wounds, burns, allergic skin

reactions, pruritis, vitiligo, general gastrointestinal disorders, colitis, gastric ulceration, duodenal ulcers, vasomotor or allergic rhinitis, or bronchial disorders, dysmenorrhoea, dyspepsia, gastroesophageal reflux, pancreatitis, or visceralgia.

21. An isolated nucleic acid molecule comprising a nucleotide sequence that encodes the amino acid sequence as set forth in any of
    (a) SEQ ID NO: 10;
    (b) SEQ ID NO: 12; or
    (c) an antigen-binding fragment of SEQ ID NO: 10 or an antigen-binding fragment of SEQ ID NO: 12, wherein the antigen-binding fragment of SEQ ID NO: 10 comprises SEQ ID NO: 14, SEQ ID NO: 22 and SEQ ID NO: 18; and the antigen-binding fragment of SEQ ID NO: 12 comprises SEQ ID NO: 20, SEQ ID NO: 16 and SEQ ID NO: 24;
    (d) SEQ ID NO: 40;
    (e) SEQ ID NO: 41;
    (f) SEQ ID NO: 42;
    (g) SEQ ID NO: 43; or
    (h) SEQ ID NO: 44.

22. An expression vector comprising the nucleic acid molecule of Claim 17.

23. An isolated host cell comprising the expression vector of Claim 22.

24. The isolated host cell according to Claim 23 wherein the cell is a eukaryotic cell.

25. The isolated host cell according to Claim 24 wherein the cell is a CHO cell.

26. A medicament for use in treating a painful disorder or condition associated with increased expression of NGF or increased sensitivity to NGF, the medicament comprising a pharmaceutically effective amount of a monoclonal antibody or an antigen-binding fragment thereof, or pharmaceutically acceptable salts thereof, wherein said

monoclonal antibody comprises the antibody according to any one of claims 1-11, and a pharmaceutically acceptable carrier, diluent or excipient.

27. The medicament of claim 26, wherein said monoclonal antibody comprises: a heavy chain variable region comprising SEQ ID NO: 10, or an antigen-binding fragment thereof, and a light chain variable region comprising SEQ ID NO: 12, or an antigen-binding fragment thereof.

28. A medicament for use in treating a painful disorder or condition associated with increased expression of NGF or increased sensitivity to NGF, the medicament comprising a pharmaceutically effective amount of a monoclonal antibody or an antigen-binding fragment thereof, comprising the amino acid sequence set forth in SEQ ID NO: 10 or the amino acid sequence as set forth in SEQ ID NO: 12, and a pharmaceutically acceptable carrier, diluent or excipient.

29. The medicament of claim 28, wherein said monoclonal antibody dissociates from a human NGF polypeptide with a K_D of about 1×10^{-9} or less and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 1×10^{-8} M or less.

30. The medicament of claim 28, wherein the antibody dissociates from a human NGF polypeptide with a K_D of about 1×10^{-10} or less and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 1×10^{-9} M or less.

31. The medicament of claim 54, wherein the antibody dissociates from a human NGF polypeptide with a K_D of about 1×10^{-11} or less and neutralizes human NGF bioactivity in a standard in vitro assay with an IC^{50} of about 0.2×10^{-9} M or less.

32. A use of a pharmaceutically effective amount of the antibody according to any one of claims 1-11 for the manufacture of a medicament suitable for treating a painful disorder or condition associated with increased expression of NGF or increased sensitivity to NGF.

33. The use of claims 12 or 32, wherein said monoclonal antibody dissociates from a human NGF polypeptide with a K_D, of about 1 x 10^{-9} or less and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 1 x10^{-8} M or less.

34. The use of claims 12 or 32, wherein the antibody dissociates from a human NGF polypeptide with a K_D of about 1 x 10^{-11} or less and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 1 x 10^{-9} M or less.

35. The use of claims 12 or 32, wherein the antibody dissociates from a human NGF polypeptide with a K_D of about 1 x 10^{-11} or less and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 0.2 x 10^{-9} or less.

36. The use of claim 32, wherein said painful disorder or condition is selected from the group consisting the condition is acute pain, dental pain, pain from trauma, surgical pain, pain resulting from amputation or abscess, causalgia, demyelinating diseases, trigeminal neuralgia, cancer, chronic alcoholism, stroke, thalamic pain syndrome, diabetes, acquired immune deficiency syndrome ("AIDS"), toxins, chemotherapy, general headache, migraine, cluster headache, mixed-vascular or non-vascular syndromes, tension headache, general inflammation, arthritis, rheumatic diseases, lupus, osteoarthritis, fibromyalgia, inflammatory bowel disorders, irritable bowel syndrome, inflammatory eye disorders, inflammatory or unstable bladder disorders, psoriasis, skin complaints with inflammatory components, sunburn, carditis, dermatitis, myositis, neuritis, collagen vascular diseases, chronic inflammatory conditions, inflammatory pain and associated hyperalgesia and allodynia, neuropathic pain and associated hyperalgesia or allodynia, diabetic neuropathy pain, causalgia, sympathetically maintained pain, deafferentation syndromes, asthma, epithelial tissue damage or dysfunction, herpes simplex, disturbances of visceral motility at respiratory, genitourinary, gastrointestinal or vascular regions, wounds, burns, allergic skin reactions, pruritis, vitiligo, general gastrointestinal disorders, colitis, gastric ulceration, duodenal ulcers, vasomotor or allergic rhinitis, or bronchial disorders, dysmenorrhoea, dyspepsia, gastroesophageal reflux, pancreatitis, or visceralgia.

37. The use of any of claims 15, 20 or 36, wherein the painful disorder is osteoarthritis, diabetic neuropathy pain, and neuropathic pain.

38. The use of claim 37, wherein the painful disorder is osteoarthritis.

39. The use of claim 37, wherein the painful disorder is diabetic neuropathy pain.

40. The use of claim 37, wherein the painful disorder is neuropathic pain.

41. An isolated monoclonal antibody that specifically binds to an epitope on human nerve growth factor (NGF) said isolated monoclonal antibody, comprising a heavy chain variable region, wherein the heavy chain variable region comprises CDR1 (SEQ ID NO: 22), CDR2 (SEQ ID NO: 18), and CDR3 (SEQ ID NO: 14) of SEQ ID NO: 10, and a light chain variable region, wherein the light chain variable region comprises CDR1 (SEQ ID NO: 24), CDR2 (SEQ ID NO: 20), and CDR3 (SEQ ID NO: 16) of SEQ ID NO: 12.

42. The isolated monoclonal antibody of claim 41, wherein the isolated monoclonal antibody is fully human.

43. The antibody of claim 42, wherein the antibody inhibits NGF signaling.

44. The isolated monoclonal antibody of claim 41, wherein said epitope comprises a plurality of determinants in regions of human NGF comprising the amino acid sequences of SEQ ID NOs: 56, 65, 71, 72, 74, 75, and 76.

45. An antigen binding fragment of the isolated monoclonal antibody of claim 41.

46. The antigen binding fragment of claim 45 selected from the group consisting of a F(ab), a F(ab)', and a $(Fab')_2$.

47. The isolated monoclonal antibody of claim 41, wherein the isolated monoclonal antibody is a single chain Fv antibody.

48. The isolated monoclonal antibody of claim 41, wherein the isolated monoclonal antibody is a chimeric or humanized antibody.

49. An isolated monoclonal antibody that specifically binds to an epitope on human nerve growth factor (NGF), wherein said epitope comprises a plurality of determinants in regions of human NGF comprising the amino acid sequences of SEQ ID NOs: 56, 65, 71, 72, 74, 75, and 76 and wherein said monoclonal antibody competes for binding to NGF with a monoclonal antibody according to claim 41 and inhibits NGF induced survival in an *in vitro* neutralization assay with an IC_{50} of about $1x10^{-8}$ M or less.

50. An isolated human antibody that specifically binds nerve growth factor (NGF), comprising a heavy chain and a light chain, wherein the heavy chain comprises a heavy chain variable region comprising SEQ ID NO: 79, SEQ ID NO: 81, SEQ ID NO: 83, SEQ ID NO: 85, or SEQ ID NO: 87, or an antigen-binding fragment thereof, and wherein the light chain comprises a light chain variable region comprising SEQ ID NO: 80, SEQ ID NO: 82, SEQ ID NO: 84, SEQ ID NO: 86, SEQ ID NO: 88, SEQ ID NO: 89, SEQ ID NO: 90, SEQ ID NO: 91, or SEQ ID NO: 131, or an antigen-binding fragment thereof.

51. The antibody of claim 50, wherein the heavy chain comprises a heavy chain variable region comprising an amino acid sequence that is at least 90% identical to SEQ ID NO: 81, SEQ ID NO: 83, SEQ ID NO: 85, SEQ ID NO: 87, or SEQ ID NO: 79, or an antigen-binding fragment thereof, and wherein the light chain comprises a light chain variable region comprising an amino acid sequence that is at least 85% identical to SEQ ID NO: 80, SEQ ID NO: 88, SEQ ID NO: 89, SEQ ID NO: 90, SEQ ID NO: 91, SEQ ID NO: 82, SEQ ID NO: 84, SEQ ID NO: 86, or SEQ ID NO: 131, or an antigen-binding fragment thereof.

52. The antibody of claim 50, wherein the light chain comprises a light chain variable region comprising an amino acid sequence that is:

(a) at least 89% or 94% identical to SEQ ID NO: 80, or an antigen-binding to fragment thereof;
(b) at least 91% or 94% identical to SEQ ID NO: 88, or an antigen-binding fragment thereof;
(c) at least 86% or 87% identical to SEQ ID NO: 89, or an antigen-binding fragment thereof;
(d) at least 87%, 91%, or 94% identical to SEQ ID NO: 90, or an antigen-binding fragment thereof;
(e) at least 86%, 94%, 96%, or 99% identical to SEQ ID NO: 91, or an antigen-binding fragment thereof;
(f) at least 91%, 95%, or 96% identical to SEQ ID NO: 82, or an antigen-binding fragment thereof;
(g) at least 86%, 94%, 95%, 98%, or 99% identical to SEQ ID NO: 84, or an antigen-binding fragment thereof;
(h) at least 86%, 94%, 95%, 98%, or 99% identical to SEQ ID NO: 86, or an antigen-binding fragment thereof; or
(i) at least 86%, 89%, 91%, or 96% identical to SEQ ID NO: 131, or an antigen-binding fragment thereof.

53. An isolated human antibody that specifically binds nerve growth factor (NGF), comprising a heavy chain and a light chain, wherein the heavy chain comprises SEQ ID NO: 92, SEQ ID NO: 93, SEQ ID NO: 94, SEQ ID NO: 98, SEQ ID NO: 99, SEQ ID NO: 100, SEQ ID NO: 104, SEQ ID NO: 105, SEQ ID NO: 106, SEQ ID NO: 110, SEQ ID NO: 111, SEQ ID NO: 112, SEQ ID NO: 116, SEQ ID NO: 117, or SEQ ID NO: 118, or an antigen-binding fragment thereof, and wherein the light chain comprises SEQ ID NO: 95, SEQ ID NO: 96, SEQ ID NO: 97, SEQ ID NO: 101, SEQ ID NO: 102, SEQ ID NO: 103, SEQ ID NO: 107, SEQ ID NO: 108, SEQ ID NO: 109, SEQ ID NO: 113, SEQ ID NO: 114, SEQ ID NO: 115, or any of SEQ ID NO: 119-134, or an antigen-binding fragment thereof.

54. The isolated human antibody of claim 4 comprising:

(a) a heavy chain comprising a human heavy chain CDR2, wherein the heavy chain CDR2 is an amino acid sequence that is at least 80% identical to SEQ ID NO: 99, SEQ ID NO: 106, SEQ ID NO: 117, SEQ ID NO: 111, or an antigen-binding fragment thereof; and

(b) a light chain comprising a human light chain CDR1, wherein the CDR1 is at least 85% identical to SEQ ID NO: 101, SEQ ID NO: 95, SEQ ID NO: 119, SEQ ID NO: 122, SEQ ID NO: 125, SEQ ID NO: 107, SEQ ID NO: 113, or an antigen-binding fragment thereof, and a human light chain CDR3, wherein the CDR3 is at least 85% identical to SEQ ID NO: 103, SEQ ID NO: 97, SEQ ID NO: 121, SEQ ID NO: 127, SEQ ID NO: 130, SEQ ID NO: 109, SEQ ID NO: 115, SEQ ID NO: 134, or an antigen -binding fragment thereof.

55. An isolated human antibody that binds specifically to nerve growth factor (NGF), wherein the antibody comprises:

(a) a heavy chain having a heavy chain variable region comprising SEQ ID NO: 79, or an antigen-binding fragment thereof, and a light chain having a light chain variable region comprising SEQ ID NO: 80, or an antigen-binding fragment thereof;

(b) a heavy chain having a heavy chain variable region comprising SEQ ID NO: 81, or an antigen-binding fragment thereof, and a light chain having a light chain variable region comprising SEQ ID NO: 82, or an antigen-binding fragment thereof;

(c) a heavy chain having a heavy chain variable region comprising SEQ ID NO: 83, or an antigen-binding fragment thereof, and a light chain having a light chain variable region comprising SEQ ID NO: 84, or an antigen-binding fragment thereof; or

(d) a heavy chain having a heavy chain variable region comprising SEQ ID NO: 86, or an antigen-binding fragment thereof, and a light chain having a light chain variable region comprising SEQ ID NO: 87, or an antigen-binding fragment thereof.

56. The antibody of any one of claims 50 to 55, wherein the heavy chain and light chain are connected by a flexible linker to form a single-chain antibody.

57. The antibody of claim 56, wherein the antibody is a single-chain Fv antibody.

58. The antibody or antigen-binding fragment thereof of any one of claims 50 to 55, wherein the antibody is:
(a) a Fab antibody;
(b) a Fab' antibody; or
(c) a (Fab')2 antibody.

59. The antibody of any one of claims 50 to 55, wherein the antibody is a fully human antibody.

60. The antibody of any one of claims 50 to 55, wherein the antibody inhibits NGF signaling.

61. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and the antibody of claim 60.

62. A pharmaceutical composition according to claim 61, wherein the composition comprises a therapeutically effective amount of the antibody.

63. A method for detecting nerve growth factor (NGF) in a biological sample comprising:
(a) contacting the sample with the antibody of any one of claims 50 to 55 under conditions that allow for binding of the antibody to NGF; and
(b) measuring the level of bound antibody in the sample.

64. A nucleic acid molecule that encodes the antibody of any one of claims 50 to 55.

65. An isolated host cell comprising the nucleic acid molecule of claim 64.

66. An isolated cell line that produces an antibody of any one of claims 50 to 55.

67. Use of the antibody of claim 60 for the manufacture of a medicament for treating a disorder or condition associated with increased expression of NGF or increased sensitivity to NGF.

68. A use of claim 67 wherein the medicament comprises a pharmaceutically effective amount of the antibody.

69. The use of claim 67 or 68, wherein the antibody dissociates from a human NGF polypeptide with a KD of 1×10^{-9} to about 1×10^{-11} M and neutralizes human NGF bioactivity in a standard *in vitro* assay with an IC_{50} of about 1×10^{-8} to about 0.2×10^{-9} M.

70. The use of claim 67 or 68, wherein the antibody dissociates from a human NGF polypeptide with a KD of about 1×10^{-10} to about 1×10^{-11} M and neutralizes human NGF bioactivity in a standard *in vitro* assay with an IC_{50} of 1×10^{-8} to about 1×10^{-9} M.

71. The use of any one of claims 67 to 70, wherein said disorder or condition is selected from the group consisting of acute pain, dental pain, pain from trauma, surgical pain, pain resulting from amputation or abscess, causalgia, demyelinating diseases, trigeminal neuralgia, cancer, chronic alcoholism, stroke, thalamic pain syndrome, diabetes, acquired immune deficiency syndrome ("AIDS"), toxins, chemotherapy, general headache, migraine, cluster headache, mixed-vascular or non-vascular syndromes, tension headache, general inflammation, arthritis, rheumatic diseases, lupus, osteoarthritis, fibromyalgia, inflammatory bowel disorders, irritable bowel syndrome, inflammatory eye disorders, inflammatory or unstable bladder disorders, psoriasis, skin complaints with inflammatory components, sunburn, carditis, dermatitis, myositis, neuritis, collagen vascular diseases, chronic inflammatory conditions, inflammatory pain and associated hyperalgesia and allodynia, neuropathic pain and associated hyperalgesia or allodynia, diabetic neuropathy pain, causalgia, sympathetically maintained pain, deafferentation syndromes, asthma, epithelial tissue damage or dysfunction, herpes simplex, disturbances of visceral motility at respiratory, genitourinary, gastrointestinal or vascular regions, wounds, burns, allergic skin reactions, pruritis, vitiligo, general gastrointestinal disorders, colitis, gastric ulceration, duodenal ulcers, vasomotor or allergic rhinitis, or bronchial disorders, dysmenorrhoea, dyspepsia, gastroesophageal reflux, pancreatitis, or visceralgia.

72. A medicament for treating a painful disorder or condition associated with increased expression of nerve growth factor (NGF) or increased sensitivity to NGF, the medicament comprising the antibody of any one of claims 50 to 60 a pharmaceutically acceptable carrier, diluent, or excipient.

73. A medicament according to claim 72, wherein the medicament comprises a pharmaceutically effective amount of the antibody.

74. The medicament of claim 72 or claim 73, wherein the monoclonal antibody dissociates from a human NGF polypeptide with a KD of about 1×10^{-9} to about 1×10^{-11} M and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of about 1×10^{-8} to about 0.2×10^{-9} M.

75. The medicament of claim 72 or claim 73, wherein the monoclonal antibody dissociates from a human NGF polypeptide with a KD of about 1×10^{-10} to about 1×10^{-11} M and neutralizes human NGF bioactivity in a standard in vitro assay with an IC_{50} of 1×10^{-8} to about 1×10^{-9} M.

76. A method for detecting NGF in a biological sample comprising:

(a) contacting the sample with an isolated human antibody that binds specifically to nerve growth factor (NGF), wherein the antibody comprises a heavy chain variable region, said heavy chain variable region comprising CDR1 (SEQ ID NO: 22), CDR2 (SEQ ID NO: 18), and CDR3 (SEQ ID NO: 14) of SEQ ID NO: 10, and a light chain variable region, said light chain variable region comprising CDR1 (SEQ ID NO: 24), CDR2 (SEQ ID NO: 20), and CDR3 (SEQ ID NO: 16) of SEQ ID 12 under conditions that allow for binding of the antibody to NGF; and

(b) measuring the level of bound antibody in the sample.

77. A method for detecting NGF in a biological sample comprising:

(a) contacting the sample with

(i) an isolated human antibody that specifically binds nerve growth factor, comprising a heavy chain and a light chain, wherein the heavy chain comprises a heavy

chain variable region comprising an amino acid sequence that is at least 90% identical to the amino acid sequence as set forth in any of SEQ ID NO: 10, SEQ ID NO: 79, SEQ ID NO: 81, SEQ ID NO: 83, SEQ ID NO: 85, or SEQ ID NO: 87, or an antigen-binding fragment thereof;

(ii) an isolated human antibody that specifically binds NGF, comprising a heavy chain and a light chain, wherein the light chain comprises a light chain variable region comprising an amino acid sequence that is at least 85% identical to the amino acid sequence as set forth in any of SEQ ID NO: 12, SEQ ID NO: 80, SEQ ID NO: 82, SEQ ID NO: 84, SEQ ID NO: 86, SEQ ID NO: 88, SEQ ID NO: 89, SEQ ID NO: 90, SEQ ID NO: 91, or SEQ ID NO: 131, or an antigen-binding fragment thereof;

(iii) an isolated human antibody that specifically binds NGF, comprising a heavy chain and a light chain, wherein the heavy chain comprises an amino acid sequence that is at least 80% identical to the amino acid sequence as set forth in any of SEQ ID NO: 14, SEQ ID NO: 18, SEQ ID NO: 22, SEQ ID NO: 92, SEQ ID NO: 93, SEQ ID NO: 94, SEQ ID NO: 98, SEQ ID NO: 99, SEQ ID NO: 100, SEQ ID NO: 104, SEQ ID NO: 105, SEQ ID NO: 106, SEQ ID NO: 110, SEQ ID NO: 111, SEQ ID NO: 112, SEQ ID NO: 116, SEQ ID NO: 117, or SEQ ID NO: 118, or an antigen-binding fragment thereof;

(iv) an isolated human antibody that specifically binds NGF, comprising a heavy chain and a light chain, wherein the light chain comprises an amino acid sequence that is at least 85% identical to the amino acid sequence as set forth in any of SEQ ID NO: 16, SEQ ID NO: 20, SEQ ID NO: 24, SEQ ID NO: 95, SEQ ID NO: 96, SEQ ID NO: 97, SEQ ID NO: 101, SEQ ID NO: 102, SEQ ID NO: 103, SEQ ID NO: 107, SEQ ID NO: 108, SEQ ID NO: 109, SEQ ID NO: 113, SEQ ID NO: 114, SEQ ID NO: 115, or any of SEQ ID NO: 119-134, or an antigen-binding fragment thereof;

(v) an isolated human antibody that specifically binds NGF comprising a CDR3 comprising an amino acid sequence selected from the group of sequences consisting of SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 94, SEQ ID NO: 97, SEQ ID NO: 100, SEQ ID NO: 103, SEQ ID NO: 106, SEQ ID NO: 109, SEQ ID NO: 112, SEQ ID NO: 115, SEQ ID NO: 118, SEQ ID NO: 121, SEQ ID NO: 124, SEQ ID NO: 127, SEQ ID NO: 130, SEQ ID NO: 134 and a variant thereof wherein the variant comprises no more than one amino acid substitution, insertion, or deletion; or

(vi) an isolated human antibody that specifically binds NGF comprising an amino acid sequence at least 90% identical to a sequence selected from the group of sequences consisting of SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, and SEQ ID NO: 22, and a variant thereof wherein the variant comprises no more than one amino acid substitution, insertion, or deletion; under conditions that allow for binding of the antibody to NGF;

(b) and measuring the level of bound antibody in the sample.

78. A method for detecting NGF in a biological sample comprising:

(a) contacting the sample with a NGF specific binding agent comprising at least one amino acid sequence selected from SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, and any of SEQ ID NOS: 79-130, under conditions that allow for binding of the binding agent to NGF; and

(b) measuring the level of bound antibody in the sample.

79. An isolated human antibody or an antigen-binding or an immunologically functional immunoglobulin fragment thereof that binds specifically to NGF, wherein the antibody or fragment comprises a heavy chain variable region comprising:

a CDR1 region comprising an amino acid sequence of the formula:

$a^1a^2a^3a^4a^5$

wherein:

a^1 is a polar hydrophilic amino acid residue;

a^2 is an aromatic amino acid residue;

a^3 is a aliphatic, polar hydrophobic, aromatic amino acid residue;

a^4 is a neutral hydrophobic or aliphatic amino acid residue; and

a^5 is a aliphatic or polar hydrophilic amino acid residue;

a CDR2 region comprising an amino acid sequence of the formula:

$b^1b^2b^3b^4b^5b^6b^7b^8b^9b^{10}b^{11}b^{12}b^{13}b^{14}b^{15}b^{16}b^{17}$

wherein:

b^1 is a aliphatic, polar hydrophobic, or aromatic amino acid residue;

b^2 is an aliphatic hydrophobic amino acid residue;

b^3 is a polar hydrophilic or aromatic amino acid residue;

b^4 is a polar hydrophilic, hydrophobic, or aromatic amino acid residue;

b^5-b^9 are independently polar hydrophilic or aliphatic amino acid residues;

b^{10} is a polar hydrophilic, aromatic, or aliphatic amino acid residue;

b^{11} is an aromatic or hydrophobic amino acid residue;

b^{12} is an aliphatic hydrophobic or polar hydrophilic amino acid residue;

b^{13} is an aliphatic, hydrophobic or polar hydrophilic amino acid residue;

b^{14} and b^{16} are independently polar hydrophilic amino acid residues;

b^{15} is an aliphatic or aromatic hydrophobic amino acid residue; and

b^{17} is an aliphatic acidic amino acid residue; and

a CDR3 region comprising an amino acid sequence of the formula:

$c^1c^2c^3c^4c^5c^6c^7c^8c^9c^{10}c^{11}c^{12}c^{13}c^{14}c^{15}c^{16}c^{17}$

wherein:

c^1 is absent or an aliphatic amino acid residue;

c^2 is absent or a polar hydrophilic or an aromatic hydrophobic amino acid residue;

c^3 and c^4 are independently absent or a polar hydrophilic, aromatic hydrophobic, or aliphatic amino acid residues;

c^5 is absent or a polar hydrophilic, aliphatic or an aromatic amino acid residue;

c^6 is absent or a polar hydrophilic or aliphatic amino acid residue;

c^7 is a polar hydrophilic or an aliphatic amino acid residue;

c^8 is a polar hydrophilic, hydrophobic or an aromatic amino acid residue;

c^9 is a polar hydrophilic, aliphatic or an aromatic hydrophobic amino acid residue;

c^{10} a polar hydrophilic, aromatic hydrophobic, or an aliphatic hydrophobic amino acid residue;

c^{11} - c^{13} are independently polar hydrophilic or aromatic hydrophobic amino acid residues;

c^{14} is an aliphatic or aromatic hydrophobic amino acid residue;

c^{15} is a polar hydrophilic or neutral hydrophobic amino acid residue;

c^{16} is absent or a polar hydrophilic amino acid residue; and

c^{17} is an aromatic hydrophobic or aliphatic hydrophobic amino acid residue, and

wherein said antibody or fragment dissociates from a human NGF polypeptide with a K_D of about 1×10^{-9} or less and neutralizes human NGF bioactivity in a standard *in vitro* assay with an IC_{50} of about 1×10^{-8} M or less.

80. The antibody or fragment according to Claim 79 wherein:

a^1 is a polar hydrophilic amino acid residue;

a^2 is an aromatic hydrophobic amino acid residue;

a^3 is an aliphatic hydrophobic amino acid residue;

a^4 is a neutral hydrophobic;

a^5 is a polar hydrophilic amino acid residue;

b^1 is a aliphatic or aromatic amino acid residue;

b^2 is Ile;

b^3 is a polar hydrophilic amino acid residue;

b^4 is a polar hydrophilic or aromatic amino acid residue;

b^5-b^9 are independently polar hydrophilic or aliphatic amino acid residues;

b^{10} is an aliphatic amino acid residue;

b^{11} is Tyr;

b^{12} is an aliphatic hydrophobic amino acid residue;

b^{13} is an aliphatic or polar hydrophilic amino acid residue;

b^{14} and b^{16} are independently polar hydrophilic amino acid residues; and

b^{15} is an aliphatic hydrophobic amino acid residue;

b^{17} is an aliphatic acidic amino acid residue;

c^1 is absent or an aliphatic amino acid residue;

c^2 is absent or a polar hydrophilic or an aromatic hydrophobic amino acid residue;

c^3 and c^4 are independently absent or a polar hydrophilic, aromatic hydrophobic, or aliphatic amino acid residues;

c^5 is absent or a polar hydrophilic amino acid residue;

c^6 is absent or a polar hydrophilic or aliphatic amino acid residue;

c^7 is a polar hydrophilic or an aliphatic amino acid residue;

c^8 is a polar hydrophilic, hydrophobic or an aromatic amino acid residue;

c^9 is a polar hydrophilic, aliphatic or an aromatic hydrophobic amino acid residue;

c^{10} is a polar hydrophilic, aromatic hydrophobic, or an aliphatic hydrophobic amino acid residue;

c^{11} - c^{13} are independently polar hydrophilic or aromatic hydrophobic amino acid residues;

c^{14} is an aliphatic or aromatic hydrophobic amino acid residue;
c^{15} is a polar hydrophilic or neutral hydrophobic amino acid residue;
c^{16} is absent or a polar hydrophilic amino acid residue; and
c^{17} is an aromatic hydrophobic or aliphatic hydrophobic amino acid residue.

81. The antibody or fragment according to Claim 79 wherein:
a^1 is Ser, Asp, or Thr; a^2 is Tyr; a^3 is Ala, Ser, Trp, or Gly; a^4 is Met or Ile; a^5 is His, Gly, or Asn; b^1 is Tyr, Gly, Ile, or Asp; b^2 is Ile; b^3 is Ser, Thr, Tyr, or Asn; b^4 is Trp, Arg, or Pro; b^5 is Ser, Asn, or Gly; b^6 is Ser, Arg, Asp, or Gly; b^7 is Ser, His, or Gly; b^8 is Ser, Ile, Asp, or Thr; b^9 is Leu, Ile, or Thr; b^{10} is Gly, Lys, or Phe; b^{11} is Tyr; b^{12} is Ala or Ser; b^{13} is Asp, Gly, or Pro; b^{14} is Ser; b^{15} is Val or Phe; b^{16} is Lys or Gln; b^{17} is Gly; c^1 is absent or an aliphatic amino acid residue; c^2 is absent or Tyr; c^3 and c^4 are independently absent, Tyr, Asn, Val, or Glu; c^5 is absent, Ser, Gly, or Trp; c^6 is absent, Ser, Gly, Glu, or Leu; c^7 is Gly, Arg, or Asp; c^8 is Trp, Pro, Ser, or Thr; c^9 is His, Gly, or Tyr; c^{10} is Val, Tyr, or Arg; c^{11} - c^{13} are independently Ser, Phe, Tyr, Asp, or Asn; c^{14} is Phe, Val, or Gly; c^{15} is Met or Asp; c^{16} is absent, Asp, or Asn; and c^{17} is Tyr or Val.

82. The antibody or fragment according to Claim 79 wherein:
a^1 is Ser or Asp; a^2 is Tyr; a^3 is Ala or Ser; a^4 is Met or Ile; a^5 is His or Asn; b^1 is Tyr or Gly; b^2 is Ile; b^3 is Ser, Thr, Tyr, or Asn; b^4 is Trp, Arg, or Pro; b^5 is Ser or Asn; b^6 is Ser or Arg; b^7 is His or Gly; b^8 is Ile or Thr; b^9 is Leu, Ile, or Thr; b^{10} is Gly or Phe; b^{11} is Tyr; b^{12} is Ala or Ser; b^{13} is Asp or Gly; b^{14} is Ser; b^{15} is Val or Phe; b^{16} is Lys or Gln; b^{17} is Gly; c^1 is absent or Gly; c^2 is absent or Tyr; c^3 and c^4 are independently absent, Tyr, Gly, or Val; c^5 is absent or Ser; c^6 is Ser or Gly; c^7 is Gly or Arg; c^8 is Trp or Pro; c^9 is His, Gly, or Tyr; c^{10} is Val or Tyr; c^{11} - c^{13} are independently Ser, Tyr, Phe, or Asp; c^{14} is Phe or Val; c^{15} is Met or Asp; c^{16} is absent or Asp; and c^{17} is Tyr or Val.

83. The antibody of claim 79, wherein:
(a) the heavy chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 22, the heavy chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 18, and the heavy chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 14;

(b) the heavy chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 92, the heavy chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 93, and the heavy chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 94;

(c) the heavy chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 98, the heavy chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 99, and the heavy chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 100;

(d) the heavy chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 104, the heavy chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 105, and the heavy chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 106;

(e) the heavy chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 110, the heavy chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 111, and the heavy chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 112; or

(f) the heavy chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 116, the heavy chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 117, and the heavy chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 118.

84. An isolated human antibody or an antigen-binding or an immunologically functional immunoglobulin fragment thereof that binds specifically to NGF, wherein the antibody or fragment comprises a light chain variable region comprising:

a CDR1 region comprising an amino acid sequence of the formula:

$a^1a^2a^3a^4a^5a^6a^7a^8a^9a^{10}a^{11}a^{12}$

wherein:

a^1 is a polar hydrophilic amino acid residue;

a^2, a^{11} and a^{12} are independently aliphatic or hydrophobic amino acid residues;

a^3, a^5, a^7 and a^8 are independently aliphatic, polar hydrophilic, or hydrophobic amino acid residues;

a^4 is a polar hydrophilic amino acid residue;

a^6 is an aliphatic or hydrophobic amino acid residue;

a^9 is absent, or an aliphatic or polar hydrophilic amino acid residue; and

a^{10} is an aliphatic, aromatic, or hydrophobic amino acid residue;

a CDR2 region comprising an amino acid sequence of the formula:

$b^1b^2b^3b^4b^5b^6b^7$

wherein:

b^1 is a aliphatic, polar hydrophobic, or hydrophobic amino acid residue;

b^2 is an aliphatic or hydrophobic amino acid residue;

b^3 and b^4 are independently polar hydrophilic, aliphatic or hydrophobic amino acid residues;

b^5 is a polar hydrophilic or aliphatic hydrophobic amino acid residues;

b^6 is a polar hydrophilic or aliphatic hydrophobic amino acid residue; and

b^7 is a polar hydrophilic amino acid residue; and

a CDR3 region comprising an amino acid sequence of the formula:

$c^1c^2c^3c^4c^5c^6c^7c^8c^9c^{10}c^{11}c^{12}c^{13}c^{14}c^{15}c^{16}c^{17}$

wherein:

c^1 and c^2 are independently polar hydrophilic amino acid residues;

c^3 is a polar hydrophilic, aliphatic or hydrophobic amino acid residue;

c^4, c^5 and c^6 are independently aliphatic, polar hydrophilic, or hydrophobic amino acid residues;

c^7 is absent or a polar hydrophilic or an aliphatic hydrophobic amino acid residue;

c^8 is a polar hydrophilic or hydrophobic amino acid residue; and

c^9 is a polar hydrophilic amino acid residue,

and wherein said antibody or fragment dissociates from a human NGF polypeptide with a K_D of about 1×10^{-9} or less and neutralizes human NGF bioactivity in a standard *in vitro* assay with an IC_{50} of about 1×10^{-6} M or less.

85. The antibody or fragment according to Claim 84 wherein:

a^1, a^3, a^4, a^7 and a^8 are independently polar hydrophilic amino acid residues;

a^2, a^6, a^{11} and a^{12} are independently aliphatic hydrophobic amino acid residues;

a^5 is a polar hydrophilic or aliphatic amino acid residue;

a^9 is absent, or an aliphatic or polar hydrophilic amino acid residue;

a^{10} is an aliphatic or aromatic amino acid residue;

b^1 is a aliphatic, polar hydrophobic, or hydrophobic amino acid residue;

b^2 is an aliphatic hydrophobic amino acid residue;

b^3, b^4 and b^7 are independently polar hydrophilic amino acid residues;

b^5 and b^6 are independently polar hydrophilic or aliphatic hydrophobic amino acid residues;
c^1 and c^2 are independently polar hydrophilic amino acid residues;
c^3 is a polar hydrophilic, aliphatic or hydrophobic amino acid residue;
c^4, c^5, and c^6 are independently aliphatic, polar hydrophilic, or hydrophobic amino acid residues;
c^7 is absent or an aliphatic hydrophobic amino acid residue;
c^8 is a hydrophobic amino acid residue; and
c^9 is a polar hydrophilic amino acid residue.

86. The antibody or fragment according to Claim 85 wherein:
a^1, a^3, a^4, and a^7 are Arg, Ser, Gln, and Ser, respectively;
a^2 is Ala;
a^5 is Gly or Ser;
a^8 is Ser or Ile;
a^9 is absent, Ser, or Gly;
a^{10} is Ala, Tyr, Trp or Phe;
b^1 is Asp, Gly, Ala, or Val;
b^2 and b^3 are Ala and Ser, respectively;
b^4 is Ser or Asn;
b^5 is Leu or Arg;
b^6 is Glu, Ala, or Gln;
b^7 is Ser or Thr;
c^1 and c^2 are Gln;
c^3 is Phe, Tyr, Arg, or Ala;
c^4 is Asn, Gly, or Ser;
c^5 is Ser or Asn;
c^6 is Tyr, Ser, Trp, or Phe;
c^7 is absent, Pro, or His;
c^8 is Leu, Trp, Tyr, or Arg; and
c^9 is Thr.

87. The antibody or fragment according to Claim 85 wherein:

a^1, a^2, a^3, a^4, and a^7 are Arg, Ala, Ser, Gln, and Ser, respectively;
a^5 is Gly or Ser;
a^8 is Ser or Ile;
a^9 is absent, Ser, or Gly;
a^{10} is Ala or Tyr;
b^1 is Asp or Gly;
b^2 and b^3 are Ala and Ser, respectively;
b^4 is Ser or Asn;
b^5 is Leu or Arg;
b^6 is Glu, Ala, or Gln;
b^7 is Ser or Thr;
c^1 and c^2 are Gln;
c^3 is Phe, Tyr, Arg, or Ala;
c^4 is Asn, Gly, or Ser;
c^5 is Ser or Asn;
c^6 is Tyr, Ser, Trp, or Phe;
c^7 is absent, Pro, or His;
c^8 is Leu, Trp, Tyr, or Arg; and
c^9 is Thr.

88. The antibody of claim 84, wherein:

(a) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 24, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 20, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 16;

(b) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 95, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 96, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 97;

(c) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 101, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 102, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 103;

(d) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 107, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 108, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 109;

(e) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 113, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 114, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 115;

(f) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 119, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 120, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 121;

(g) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 122, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 123, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 124;

(h) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 125, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 126, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 127;

(i) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 128, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 129, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 130; or

(j) the light chain CDR1 has an amino acid sequence as set forth in SEQ ID NO: 132, the light chain CDR2 has an amino acid sequence as set forth in SEQ ID NO: 133, and the light chain CDR 3 has an amino acid sequence as set forth in SEQ ID NO: 134.

89. A polynucleotide encoding the antibody or fragment according to any of Claims 79-88.

90. An expression vector comprising the polynucleotide of Claim 89.

91. A host cell comprising the expression vector of Claim 90.

92. The host cell according to Claim 91 wherein the cell is a eukaryotic cell.

93. The host cell according to Claim 92 wherein the cell is a CHO cell.

CLAIMS

1. An invention not claimed in any divisional application.