Claims

1. A method of preparing an antibody suitable for use in a feline comprising the steps of:

- providing a donor antibody from a species other than a feline, wherein the donor antibody has binding specificity for a target antigen present in felines;

- comparing each amino acid residue of the amino acid sequence of framework regions of the donor antibody with each amino acid residue present at a corresponding position in the amino acid sequence of framework regions of one or more feline antibodies to identify one or more amino acid residues within the amino acid sequence of the framework regions of the donor antibody that differ from one or more amino acid residues at the corresponding position within the amino acid sequence of framework regions of the one or more feline antibodies; and

- substituting the one or more identified amino acid residues in the donor antibody with the one or more amino acid residues present at the corresponding position in the one or more feline antibodies.

2. The method as claimed in claim 1 wherein the step of substituting the one or more identified amino acid residues comprises substituting the one or more identified amino acid residues with the one or more amino acid residues present at the corresponding position which have the highest homology to the one or more substituted amino acid residues.

3. The method as claimed in claim 1 or 2 wherein the method further comprises the step of replacing constant domains of the heavy chain and/or light chain of the donor antibody with constant domains of a heavy and/or light chain derived from a feline antibody.

4. The method as claimed in claim 3 wherein the constant domain of the heavy chain is replaced with a HC2 type feline constant domain.

5. The method as claimed in any one of claims 1 to 4 wherein the target antigen is nerve growth factor (NGF).

6. A chimeric antibody or a binding fragment thereof which specifically binds to feline neuronal growth factor (NGF) and neutralises the ability of feline NGF to bind to the p75 or TrkA feline NGF receptor, said chimeric antibody comprising light and/or heavy chain variable domains derived from an antibody which binds nerve growth factor in a species other than felines, and light and heavy chain constant domains obtained from feline derived antibodies.

7. The chimeric antibody as claimed in claim 6 wherein the chimeric antibody comprises a light chain comprising the amino acid sequence of SEQ ID NO:1 or an amino acid sequence which has a sequence identity of at least 85% thereto and/or a heavy chain comprising the amino acid sequence of SEQ ID NO:2 or a sequence which has an amino acid identity of at least 85% thereto.

8. The chimeric antibody as claimed in claim 6 or claim 7 wherein the heavy chain constant domains are selected or modified by way of amino acid substitution or deletion such that said constant domains do not mediate downstream effector functions.

9. The chimeric antibody as claimed in claim 8 wherein the heavy chain constant domain is an aglycosylated amino acid sequence having the amino acid sequence of SEQ ID NO:19 or a sequence which has an amino acid identity of at least 85% thereto.

10. A neutralising antibody or an antigen binding fragment thereof which is capable of specifically binding to feline nerve growth factor (NGF) wherein the antibody or antibody binding fragment comprises a light chain variable region comprising the amino acid sequence of SEQ ID NO:23 or an amino acid sequence which has an identity of at least 85% thereto and/or a heavy chain variable region

comprising the amino acid sequence of SEQ ID NO:22 or an amino acid sequence which has an identity of at least 85% thereto.

11. The antibody or antigen binding fragment thereof as claimed in claim 10 wherein the light chain comprises the amino acid sequence of SEQ ID NO:25 or an amino acid sequence which has an identity of at least 85% thereto.

12. The antibody or antigen binding fragment thereof as claimed in claim 10 or 11 wherein the heavy chain comprises the amino acid sequence of SEQ ID NO:24 or an amino acid sequence which has a sequence identity of at least 85% thereto.

13. A neutralising antibody or an antigen binding fragment thereof which is capable of specifically binding to feline nerve growth factor (NGF) wherein the antibody or antibody binding fragment comprises a light chain variable region comprising the amino acid sequence of SEQ ID NO:3 or an amino acid sequence which has an identity of at least 85% thereto and/or a heavy chain variable region comprising the amino acid sequence of SEQ ID NO:4 or an amino acid sequence which has an identity of at least 85% thereto.

14. The antibody or antigen binding fragment thereof as claimed in any one of claims 10 to 13 wherein the antibody is a chimeric or felinised antibody.

15. The antibody or antigen binding fragment thereof as claimed in in any one of claims 10 to 14 wherein the heavy chain constant domains are selected or modified by way of amino acid substitution or deletion such that said constant domains do not mediate downstream effector functions.

16. The antibody or antigen binding fragment thereof as claimed in any one of claims 10 to 15 wherein the binding of the antibody to feline NGF inhibits the ability of feline NGF to bind to the p75 or the TrkA feline NGF receptors.

17. The antibody or antigen binding fragment thereof as claimed in any one of claims 13 to 16 wherein the light chain comprises the amino acid sequence of SEQ ID NO:5 or an amino acid sequence which has an identity of at least 85% thereto.

18. The antibody or antigen binding fragment thereof as claimed in any one of claims 13 to 17 wherein the heavy chain comprises the amino acid sequence selected from the group consisting of SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:17 and SEQ ID NO:18, or an amino acid sequence which has a sequence identity of at least 85% thereto.

19. An anti-feline NGF antibody or feline NGF binding fragment thereof comprising a light chain variable region comprising at least one of:

an FR1 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:26,

an FR2 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:27,

an FR3 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:28, and

an FR4 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:29,

and/or a heavy chain variable region comprising at least one of:

an FR1 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:30,

an FR2 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:31,

an FR3 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:32, and

an FR4 framework region consisting or comprising of the amino acid sequence of SEQ ID NO:33.

20. The anti-feline NGF antibody or feline NGF binding fragment as claimed in claim 19 which comprises a light chain variable domain having an FR1 region of SEQ ID NO:26 which has been modified by one or more of the amino acid substitutions selected from the group consisting of D1 is E or N, I2 is V, P or T, E3 is V or M, M4 is L or I, S7 is T, S10 is F, S12 is P or A, T14 is I or A, E17 is D, S18 is P or A, V19 is A, I21 is F and S22 is F.

21. The anti-feline NGF antibody or feline NGF binding fragment as claimed in claim 19 or 20 which comprises a light chain variable domain having an FR2 region of SEQ ID NO:27 which has been modified by one or more of the amino acid substitutions selected from the group consisting of Y2 is F, L3 is F or R, K5 is R, R8 is Q, L12 is R, I14 is M and Y15 is H or A.

22. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 21 which comprises a light chain variable domain having an FR3 region of SEQ ID NO:28 which has been modified by one or more of the amino acid substitutions selected from the group consisting of G1 is R, F6 is I, S7 is T, T13 is A or S, T16 is I or A, K18 is R or T, S20 is A, G or T, R21 is G, V22 is M, Q23 is E, T24 is A, V or P, E25 is D, V29 is I, H or L and F31 is Y.

23. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 22 which comprises a light chain variable domain having an FR4 region of SEQ ID NO:29 which has been modified by one or more of the amino acid substitutions selected from the group consisting of F1 is S, Q3 is P, K6 is H, Q, E, S or T, E8 is D, L9 is V, I or M and K10 is R, D or T.

24. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 23 which comprises a heavy chain variable domain having an FR1 region of SEQ ID NO:30 which has been modified by one or more of the amino acid substitutions selected from the group consisting of Q1 is D or E, V2 is E, Q3 is L or R, L4 is V, V5 is M, E6 is Q or D, A9 is G, E10 is D or N, L11 is V or R, V12 is R or K, Q13 is K, T, E, N or R, P14 is T, G15 is E, E16 is G, A or T, S17

is A, L18 is V, R19 is K or E, L20 is I or P, T21 is F or S, A23 is K, V or Q, A24 is T or D and G26 is A.

25. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 24 which comprises a heavy chain variable domain having an FR2 region of SEQ ID NO:31 which has been modified by one or more of the amino acid substitutions selected from the group consisting of V2 is L, F or I, R3 is C or H, A5 is S, V or T, G7 is A, E or S, K8 is Q or E, L10 is F or P, E11 is Q, W12 is C or L, M13 is V or I and G14 is A or S.

26. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 25 which comprises a heavy chain variable domain having an FR3 region of SEQ ID NO:32 which has been modified by one or more of the amino acid substitutions selected from the group consisting of R1 is Q or K, L2 is F, T3 is I, I4 is L, M or V, T5 is S, R6 is A, T, K, G or V, T8 is N, D, A or S, S9 is A, D or T, K10 is T, E, Q, N or R, N11 is D or K, T12 is I or A, V13 is A, L or G, F14 is Y, V, A, S or W, L15 is M, Q16 is E, D, H or V, M17 is L, H18 is N, S, T, D, G or R, S19 is N, Q21 is R, K or T, S22 is T, I, A or V, E23 is A, T, D, G or S, A26 is G or S, T27 is V, M, I or A, Y28 is H, Y29 is H or F and A31 is T, V, G, L, I or M.

27. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 26 which comprises a heavy chain variable domain having an FR4 region of SEQ ID NO:33 which has been modified by one or more of the amino acid substitutions selected from the group consisting of W1 is R, C or L, G2 is A, Q3 is H, R, P or V, G4 is D, T5 is A or V, T6 is L, I, Q, M or S, V7 is I, T8 is A, I or R, V9 is G, S10 is P and A11 is S or Q.

28. The anti-feline NGF antibody or feline NGF binding fragment as claimed in any one of claims 19 to 27 wherein the antibody has a HC2 type feline constant domain.

29. An antibody prepared according to the method of any one of claims 1 to 5, or a binding fragment thereof.

30. The antibody or binding fragment as claimed in any one of claims 6 to 29 which when bound to feline NGF neutralises the ability of feline NGF to bind to the p75 or the TrkA feline NGF receptors.

31. The antibody or binding fragment as claimed in any one of claims 6 to 30 which specifically binds to feline NGF with a binding affinity having an equilibrium dissociation constant (K_D) of $1x10^{-8}$ or less.

32. The antibody or binding fragment as claimed in any one of claims 6 to 31 wherein the antibody is a multispecific or multivalent antibody.

33. The antibody or binding fragment as claimed in any one of claims 6 to 32 wherein the antibody or binding fragment is not immunogenic in felines.

34. The binding fragment as claimed in any one of claims 6 to 33 wherein the binding fragment is selected from the group consisting of a single chain Fv (scFv) antibody fragment, a Fab antibody fragment, a Fab' antibody fragment and a $F(ab')_2$ antibody fragment.

35. A method for treating, inhibiting or ameliorating pain in a feline, the method comprising the steps of:

- providing a therapeutically effective amount of an anti-feline NGF antibody, or antigen binding fragment thereof, wherein the antibody is a chimeric antibody or a felinised antibody, and
- administering the same to a feline in need thereof.

36. The method as claimed in claim 35 wherein the anti-feline NGF antibody is a chimeric antibody as claimed in any one of claims 6 to 9.

37. The method as claimed in claim 35 wherein the anti-feline NGF antibody is a felinised antibody as claimed in any one of claims 10 to 12.

38. The method as claimed in claim 35 wherein the anti-feline NGF antibody is an antibody as claimed in any one of claims 13 to 18.

39. The method as claimed in claim 35 wherein the anti-feline NGF antibody is an antibody as claimed in any one of claims 19 to 28.

40. The method as claimed in claim 35 wherein the anti-feline NGF antibody is an antibody as claimed in any one of claims 29 to 34.

41. The method as claimed in claim 35 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:23 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:22 or an amino acid sequence having at least 85% sequence homology thereto.

42. The method as claimed in claim 35 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:3 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:4 or an amino acid sequence having at least 85% sequence homology thereto.

43. The method as claimed in claim 35 wherein the anti-feline NGF antibody comprises a light chain having the amino acid sequence of SEQ ID NO:1, SEQ ID NO:5 or SEQ ID NO:25 or a sequence having a sequence identity of at least 85% thereto and/or a heavy chain which comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19 and SEQ ID NO:24, or an amino acid sequence having a sequence identity of at least 85% identity thereto.

44. The method as claimed in any one of claims 35 to 43 wherein the pain is selected from the group consisting of neuropathic pain, inflammatory pain, pruritic pain, peri-operative, post-operative and post-surgical pain.

45. The method as claimed in claim 44 wherein the post operative pain is selected from the group consisting of orthopaedic surgery, soft tissue surgery, ovariohysterectomy procedures and castration procedures.

46. A method for the treatment of arthritis or an arthritic condition in a feline subject, said method comprising the steps of:

- providing a therapeutically effective amount of an anti-feline NGF antibody, or antigen binding fragment thereof, wherein the antibody is a chimeric or a felinised antibody, and
- administering the same to a feline in need thereof.

47. The method as claimed in claim 46 wherein the anti-feline NGF antibody is an antibody as claimed in any one of claims 6 to 34.

48. The method as claimed in claim 46 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:23 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:22 or an amino acid sequence having at least 85% sequence homology thereto.

49. The method as claimed in claim 46 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:3 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:4 or an amino acid sequence having at least 85% sequence homology thereto.

50. The method as claimed in claim 46 wherein the anti-feline NGF antibody comprises a light chain having the amino acid sequence of SEQ ID NO:1, SEQ ID NO:5 or SEQ ID NO:25 or a sequence having a sequence identity of at least 85% thereto and/or a heavy chain which comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19 and SEQ ID NO:24, or an amino acid sequence having a sequence identity of at least 85% identity thereto.

51. The method as claimed in any one of claims 46 to 50 wherein the arthritis or arthritic condition includes the conditions selected from the group consisting of immune mediated polyarthritis, rheumatoid arthritis and osteoarthritis.

52. The method as claimed in any one of claims 46 to 51 wherein the treatment of the arthritis or arthritic condition comprises ameliorating, inhibiting, reducing, suppressing or delaying the onset of pain associated with, or attributable to, the arthritis or arthritic condition.

53. A method for the treatment of a condition caused by, associated with or resulting in the increased expression of feline NGF or increased sensitivity to NGF in a feline subject, said method comprising the steps of:

- providing a therapeutically effective amount of an anti-feline NGF antibody, or antigen binding fragment thereof, wherein the antibody is a chimeric antibody or a felinised antibody, and
- administering the same to a feline in need thereof.

54. The method as claimed in claim 53 wherein the anti-feline NGF antibody is an antibody as claimed in any one of claims 6 to 34.

55. The method as claimed in claim 53 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:23 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID

NO:22 or an amino acid sequence having at least 85% sequence homology thereto.

56. The method as claimed in claim 53 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:3 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:4 or an amino acid sequence having at least 85% sequence homology thereto.

57. The method as claimed in claim 53 wherein the anti-feline NGF antibody comprises a light chain having the amino acid sequence of SEQ ID NO:1, SEQ ID NO:5 or SEQ ID NO:25 or a sequence having a sequence identity of at least 85% thereto and/or a heavy chain which comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19 and SEQ ID NO:24, oran amino acid sequence having a sequence identity of at least 85% identity thereto.

58. A method for the treatment of a tumour induced to proliferate by NGF in a feline and conditions associated therewith comprising the steps of:

- providing a therapeutically effective amount of an anti-feline NGF antibody, or antigen binding fragment thereof, wherein the antibody is a chimeric or a felinised antibody, and
- administering the same to a feline in need thereof.

59. The method as claimed in claim 58 wherein the anti-feline NGF antibody is an antibody as claimed in any one of claims 6 to 34.

60. The method as claimed in claim 59 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:23 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID

NO:22 or an amino acid sequence having at least 85% sequence homology thereto.

61. The method as claimed in claim 58 wherein the anti-feline NGF antibody comprises a light chain variable domain comprising the amino acid sequence of SEQ ID NO:3 or a sequence which has at least 85% identity thereto and/or a heavy chain variable domain comprising the amino acid sequence of SEQ ID NO:4 or an amino acid sequence having at least 85% sequence homology thereto.

62. The method as claimed in claim 58 wherein the anti-feline NGF antibody comprises a light chain having the amino acid sequence of SEQ ID NO:1, SEQ ID NO:5 or SEQ ID NO:25 or a sequence having a sequence identity of at least 85% thereto and/or a heavy chain which comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19 and SEQ ID NO:24, or an amino acid sequence having a sequence identity of at least 85% identity thereto.

63. The method as claimed in any one of claims 58 to 62 wherein the tumour is induced to proliferate by autocrine or paracrine NGF.

64. The method as claimed in claim 63 wherein the tumour is an osteosarcoma.

65. The method of any one of claims 35 to 64 further comprising the step of co-administering at least one further therapeutic agent.

66. The method as claimed in claim 65 wherein the therapeutic agent is selected from the group consisting of an analgesic, an NSAID, an opioid, a corticosteroid and a steroid.

67. The method as claimed in claim 65 wherein the at least one therapeutic agent is selected from the group consisting of an antibiotic, an antifungal

therapeutic agent, an antiprotozoal therapeutic agent and an antiviral therapeutic agent.

68. The method as claimed in claim 65 wherein the at least one therapeutic agent is selected from the group consisting of an inhibitor of a mediator of inflammation, a PGE-receptor antagonist, an immunosuppressive agent, cyclosporine, an anti-inflammatory glucocorticoid, an agent for use in the treatment of cognitive dysfunction or cognitive impairment, an anti-hypertensive, a compound used for the treatment of cardiovascular dysfunction, a diuretic, a vasodilator, a beta-adrenergic receptor antagonist, an angiotensin-II converting enzyme inhibitor, a calcium channel blocker and a HMG-CoA reductase inhibitor.

69. The method of any one of claims 35 to 68 wherein the antibody or antigen binding fragment is administered to a feline at a dose ranging from about 0.01 mg/kg of body weight to about 10 mg/kg of body weight.

70. The method of any one of claims 35 to 68 wherein the antibody or antigen binding fragment is administered to a feline at a dose ranging from about 0.03 mg/kg of body weight to about 3 mg/kg of body weight.

71. A pharmaceutical composition for treating pain or a condition resulting in or caused by pain in a feline, comprising a therapeutically effective amount of an anti-feline NGF antibody or binding fragment thereof according to any one of claims 6 to 34 along with at least one pharmaceutically acceptable carrier, excipient or diluent.

72. The pharmaceutical composition as claimed in claim 71 further comprising at least one analgesic, NSAID, opioid, corticosteroid or steroid.

73. The pharmaceutical composition as claimed in claim 71 or 72 wherein the condition resulting in pain is selected from the group consisting of rheumatoid

arthritis, osteoarthritis, acute pain, inflammation, pruritis, chronic pain, surgical pain and post-surgical pain.

74. An isolated nucleic acid that encodes an antibody or antigen binding fragment according to any one of claims 6 to 34.

75. An isolated nucleic acid which encodes the light chain variable domain of an anti-feline NGF felinised antibody or antibody fragment having the amino acid sequence of SEQ ID NO:3 or SEQ ID NO:23 or a light chain having the amino acid sequence of SEQ ID NO:5 or SEQ ID NO:25.

76. An isolated nucleic acid which encodes the heavy chain variable domain of an anti-feline NGF felinised antibody or antibody fragment having the amino acid sequence of SEQ ID NO:4 or SEQ ID NO: 22 or a heavy chain having the amino acid sequence selected from the group consisting of SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:17, SEQ ID NO:18 and SEQ ID NO:24.

77. An isolated nucleic acid which encodes the light chain of an anti-feline NGF chimeric antibody or antibody fragment thereof having the amino acid sequence of SEQ ID NO:1.

78. An isolated nucleic acid which encodes the heavy chain of an anti-feline NGF chimeric antibody or antibody fragment thereof having the amino acid sequence of SEQ ID NO:2, SEQ ID NO:16 or SEQ ID NO:19.

79. The isolated nucleic acid as claimed in any one of claims 74 to 78 which is operably linked to one or more regulatory sequences.

80. An expression vector comprising a nucleic acid as claimed in any one of claims 74 to 78.

81. The expression vector as claimed in claim 80 further comprising one or more regulatory sequences.

82. The expression vector as claimed in claim 80 or 81 wherein the expression vector is a plasmid or a retroviral vector.

83. A host cell incorporating the expression vector as claimed in any one of claims 80 to 82.

84. A method for producing a felinised anti-feline NGF neutralising antibody, the method comprising the step of culturing a host cell as claimed in claim 83 to allow the cell to express a felinised anti-feline NGF neutralising antibody.

85. A method for treating, ameliorating or inhibiting pain in a feline, the method comprising the step of administering to the feline a therapeutically effective amount of a nucleic acid according to any of claims 74 to 78.

86. An antibody or antibody binding fragment according to any one of claims 6 to 34, a pharmaceutical composition according to any one of claims 71 to 73, a nucleic acid as claimed in any one of claims 74 to 78, an expression vector as claimed in claims 80 to 82 or a host cell as claimed in claim 83 for use in the treatment or prevention of pain in a feline.

87. The antibody or antibody binding fragment as claimed in claim 86 wherein the pain is selected from the group consisting of acute pain, chronic pain, peri-operative pain, post-operative pain, pain resulting orthopaedic surgery, pain associated with soft tissue surgery, inflammatory pain, pruritic pain, pain resulting from ovariohysterectomy procedures, pain resulting from castration procedures, chronic pain associated with cancer or a cancerous condition and pain associated with or resulting from rheumatoid arthritis, immune mediated polyarthritis or osteoarthritis.

88. An antibody or antibody binding fragment according to any one of claims 6 to 34, a pharmaceutical composition according to any one of claims 71 to 73, a nucleic acid as claimed in any one of claims 74 to 78, an expression vector as claimed in claims 80 to 82 or a host cell as claimed in claim 83 for use in the treatment of arthritis.

89. The antibody as claimed in claim 88 wherein the arthritis is osteoarthritis, immune mediated polyarthritis or rheumatoid arthritis.

90. An antibody or antibody binding fragment according to any one of claims 6 to 34, a pharmaceutical composition according to any one of claims 71 to 73, a nucleic acid as claimed in any one of claims 74 to 78, an expression vector as claimed in claims 80 to 82 or a host cell as claimed in claim 83 for use in the treatment of a tumour induced to proliferate by NGF in a feline and conditions associated therewith.

91. The antibody as claimed in claim 90 wherein the tumour is an osteosarcoma.

92. Use of an antibody or antibody binding fragment according to any one of claims 6 to 34, a pharmaceutical composition according to any one of claims 71 to 73, a nucleic acid as claimed in any one of claims 74 to 78, an expression vector as claimed in claims 80 to 82 or a host cell as claimed in claim 83 in the preparation of a medicament for the treatment or prevention of pain in a feline.

93. Use of the antibody or antibody binding fragment as claimed in claim 92 wherein the pain is selected from the group consisting of acute pain, chronic pain, peri-operative pain, post-operative pain, pain resulting orthopaedic surgery, pain associated with soft tissue surgery, inflammatory pain, pruritic pain, pain resulting from ovariohysterectomy procedures, pain resulting from castration procedures, chronic pain associated with cancer or a cancerous condition and pain associated

with or resulting from rheumatoid arthritis, immune mediated polyarthritis or osteoarthritis.

94. Use of an antibody or antibody binding fragment according to any one of claims 6 to 34, a pharmaceutical composition according to any one of claims 71 to 73, a nucleic acid as claimed in any one of claims 74 to 78, an expression vector as claimed in claims 80 to 82 or a host cell as claimed in claim 83 in the preparation of a medicament for the treatment, inhibition, amelioration or prevention of arthritis in a feline.

95. Use of the antibody or antibody binding fragment as claimed in claim 94 wherein the arthritis is osteoarthritis, immune mediated polyarthritis or rheumatoid arthritis.

96. Use of an antibody or antibody binding fragment according to any one of claims 6 to 34, a pharmaceutical composition according to any one of claims 71 to 73, a nucleic acid as claimed in any one of claims 74 to 78, an expression vector as claimed in claims 80 to 82 or a host cell as claimed in claim 83 in the preparation of a medicament for the treatment of a tumour induced to proliferate by NGF in a feline and conditions associated therewith.

97. Use of the antibody or antibody binding fragment as claimed in claim 96 wherein the tumour is an osteosarcoma.

98. A cell line or a derivative or progeny cell thereof that produces anti-feline NGF neutralising monoclonal antibodies or fragments thereof according any one of claims 6 to 34.

99. A kit for the treatment of pain in felines, or for the treatment of a condition associated with pain, or for the treatment, amelioration or inhibition of pain associated with osteoarthritis, inflammation, pruritis, immune mediated polyarthritis

or rheumatoid arthritis comprising an anti-feline NGF antibody or fragment according to any one of claims 6 to 34 and instructions for use of the same.

100. A diagnostic kit comprising an anti-feline NGF antibody or binding fragment according to any one of claims 6 to 34 for use in the detection of the anti-feline NGF monoclonal antibody or binding fragment.

Claims

1. A method of preparing an antibody suitable for use in a feline comprising the steps of:

- providing a donor antibody from a species other than a feline, wherein the donor antibody has binding specificity for a target antigen present in felines;

- comparing each amino acid residue of the amino acid sequence of framework regions of the donor antibody with each amino acid residue present at a corresponding position in the amino acid sequence of framework regions of one or more feline antibodies to identify one or more amino acid residues within the amino acid sequence of the framework regions of the donor antibody that differ from one or more amino acid residues at the corresponding position within the amino acid sequence of framework regions of the one or more feline antibodies; and

- substituting the one or more identified amino acid residues in the donor antibody with the one or more amino acid residues present at the corresponding position in the one or more feline antibodies to produce a modified antibody,

wherein the modified antibody does not contain any amino acid in any position within the framework regions which would be foreign at the corresponding position in feline; and

wherein the modified antibody is capable of specifically binding to feline neuronal growth factor (NGF) and inhibiting the ability of feline NGF to bind to the p75 or TrkA feline NGF receptor.

2. An antibody or an antigen binding fragment thereof which is capable of specifically binding to feline neuronal growth factor (NGF) and inhibiting the ability of feline NGF to bind to the p75 or TrkA feline NGF receptor, wherein the antibody or antigen binding fragment thereof comprises a light chain variable region comprising the amino acid sequence of SEQ ID NO:3 or an amino acid sequence which has a sequence identity of at least 85% thereto and a heavy chain variable region comprising the amino acid sequence of SEQ ID NO:4 or a sequence which has an amino acid identity of at least 85% thereto;

wherein the antibody or antigen binding fragment thereof does not contain any amino acid in any position within the framework regions which would be foreign at a corresponding position in felines.

3. The antibody or antigen binding fragment thereof as claimed in claim 2, wherein the light chain variable region comprises the amino acid sequence of SEQ ID NO:3 and the heavy chain variable region comprises the amino acid sequence of SEQ ID NO:4.

4. The antibody or antigen binding fragment thereof as claimed in claim 2, wherein the light chain comprises the amino acid sequence of SEQ ID NO:5 or an amino acid sequence which has an identity of at least 85% thereto and wherein the heavy chain comprises the amino acid sequence of SEQ ID NO:6 or an amino acid sequence which has an identity of at least 85% thereto.

5. The antibody or antigen binding fragment thereof as claimed in claim 4, wherein the light chain comprises the amino acid sequence of SEQ ID NO:5 and the heavy chain comprises the amino acid sequence of SEQ ID NO:6.

6. The antibody or antigen binding fragment thereof as claimed in claim 2 wherein the light chain comprises the amino acid sequence of SEQ ID NO:25 or an amino acid sequence which has an identity of at least 85% thereto and wherein the heavy chain comprises the amino acid sequence of SEQ ID NO:24 or an amino acid sequence which has a sequence identity of at least 85% thereto.

7. The antibody or antigen binding fragment thereof as claimed in claim 2, wherein the light chain variable region comprises the amino acid sequence of SEQ ID NO:23 or an amino acid sequence which has an identity of at least 85% thereto and the heavy chain variable region comprises the amino acid sequence of SEQ ID NO:22 or an amino acid sequence which has an identity of at least 85% thereto.

8. The antibody or antigen binding fragment thereof as claimed in claim 2, wherein the light chain variable region comprises the amino acid sequence of SEQ ID NO:23 and the heavy chain variable region comprises the amino acid sequence of SEQ ID NO:22.

9. An antibody or antigen binding fragment thereof which is capable of specifically binding to feline neuronal growth factor (NGF) and inhibiting the ability of feline NGF to bind to the p75 or TrkA feline NGF receptor, the antibody or antigen binding fragment thereof comprising a light chain variable region comprising:

an FR1 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:26 or an amino acid sequence which has a sequence identity of at least 85% thereto,

an FR2 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:27 or an amino acid sequence which has a sequence identity of at least 85% thereto,

an FR3 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:28 or an amino acid sequence which has a sequence identity of at least 85% thereto, and

an FR4 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:29 or an amino acid sequence which has a sequence identity of at least 85% thereto,

and a heavy chain variable region comprising:

an FR1 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:30 or an amino acid sequence which has a sequence identity of at least 85% thereto,

an FR2 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:31 or an amino acid sequence which has a sequence identity of at least 85% thereto,

an FR3 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:32 or an amino acid sequence which has a sequence identity of at least 85% thereto, and

an FR4 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:33 or an amino acid sequence which has a sequence identity of at least 85% thereto;

wherein the antibody or antigen binding fragment thereof does not contain any amino acid in any position within the framework regions which would be foreign at the corresponding position in feline.

10. The antibody or antigen binding fragment thereof as claimed in claim 9 comprising a light chain variable region comprising:

an FR1 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:26;

an FR2 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:27;

an FR3 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:28; and

an FR4 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:29;

and a heavy chain variable region comprising:

an FR1 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:30;

an FR2 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:31;

an FR3 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:32; and

an FR4 framework region consisting of or comprising the amino acid sequence of SEQ ID NO:33.

11. The antibody or antigen binding fragment thereof as claimed in claim 2 or claim 9 comprising a heavy chain constant domain selected or modified by way of amino acid substitution or deletion such that said constant domain does not mediate downstream effector functions.

12. The antibody or antigen binding fragment as claimed in claim 11, wherein the antibody has a HC2 type feline constant domain.

13. The antibody or antigen binding fragment thereof as claimed in claim 12, wherein the heavy chain comprises the amino acid sequence selected from the group consisting of SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:17 and SEQ ID NO:18, or an amino acid sequence which has a sequence identity of at least 85% thereto.

14. A pharmaceutical composition comprising the antibody or antigen binding fragment thereof as claimed in any one of claims 2 to 13, together with at least one pharmaceutically acceptable carrier, excipient or diluent.

15. The antibody or antigen binding fragment thereof as claimed in any one of claims 2 to 13 for use in the treatment of pain, or for use in the treatment, amelioration or inhibition of pain associated with immune mediated polyarthritis, osteoarthritis or rheumatoid arthritis, or for use in the treatment of a tumour induced to proliferate by NGF in a feline.

16. A kit for the treatment of pain in felines, or for the treatment, amelioration or inhibition of pain associated with osteoarthritis, immune mediated polyarthritis or rheumatoid arthritis, or for the treatment of a tumour induced to proliferate by NGF in a feline, comprising the antibody or antigen binding fragment thereof according to any one of claims 2 to 13 and instructions for use of the same.