

WHAT IS CLAIMED IS: CLAIMS

1. A modified IgG comprising: a canine IgG constant domain comprising at least one amino acid substitution relative to a wild-type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat.
- 1.2. The modified IgG of claim 1, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).
- 2.3. The modified IgG of claim 1, wherein the modified IgG has an increased half-life compared to the half-life of an IgG having the wild-type canine IgG constant domain.
- 3.4. The modified IgG of claim 1, wherein the modified IgG has a higher affinity for FcRn than the IgG having the wild-type canine IgG constant domain.
- 4.5. The modified IgG of claim 1, wherein the modified IgG is a canine or caninized IgG.
- ~~5. The modified IgG of claim 1, wherein the IgG is IgG_A, IgG_B, IgG_C, or IgG_D.~~
- ~~6. The modified IgG of claim 1, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.~~
- ~~7. The modified IgG of claim 1, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.~~
- 8.6. The modified IgG of claim 1, wherein the IgG constant domain comprises an Fc constant region having CH2 ~~and/or~~ CH3 domain, or a combination thereof.
7. The modified IgG of claim 4.3, wherein the wild-type canine IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 42.
- 9.8. The modified IgG of claim 4, wherein the wild-type canine IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 2.
- 10.9. A pharmaceutical composition comprising the modified IgG of claim 1 and a pharmaceutically acceptable carrier.

~~11.10.~~ A kit comprising the modified IgG of claim 1, in a container, and instructions for use.

~~12.~~ A polypeptide comprising: a canine IgG constant domain comprising at least one amino acid substitution relative to a wild type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat.

~~13.~~ The polypeptide modified IgG of claim 13, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).

~~14.~~ The polypeptide of claim 13, wherein the polypeptide has an increased half-life compared to the half-life of the polypeptide of the wild type canine IgG constant domain.

~~15.~~ The polypeptide of claim 13, wherein the polypeptide has a higher affinity for FcRn than the polypeptide of the IgG having the wild type canine IgG constant domain.

~~16.~~ The polypeptide of claim 13, wherein the polypeptide is a polypeptide of a canine or caninized IgG.

~~17.~~ The polypeptide of claim 17, wherein the IgG is IgG_A, IgG_B, IgG_C, or IgG_D.

~~18.~~ The polypeptide of claim 13, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.

~~19.~~ The polypeptide of claim 13, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.

~~20.~~ The polypeptide of claim 13, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.

~~21.11.~~ The polypeptide of claim 13, wherein the IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.

~~22.~~ A pharmaceutical composition comprising the polypeptide of claim 13 and a pharmaceutically acceptable carrier.

~~23.~~ A kit comprising the polypeptide of claim 13, in a container, and instructions for use.

- ~~24. An antibody comprising: a canine IgG constant domain comprising at least one amino acid substitution relative to a wild-type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat.~~
- ~~25. The antibody of claim 25, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).~~
- ~~26. The antibody of claim 25, wherein the antibody has an increased half-life compared to the half-life of an antibody having the wild-type canine IgG constant domain.~~
- ~~27. The antibody of claim 25, wherein the antibody has a higher affinity for FcRn than an antibody having the wild-type canine IgG constant domain.~~
- ~~28. The antibody of claim 25, wherein the antibody is a canine or caninized antibody.~~
- ~~29. The antibody of claim 25, wherein the antibody is IgG_A, IgG_B, IgG_C, or IgG_D.~~
- ~~30. The antibody of claim 25, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.~~
- ~~31. The antibody of claim 25, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.~~
- ~~32. The antibody of claim 25, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.~~
- ~~33. The antibody of claim 25, wherein the IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.~~
- ~~34. A pharmaceutical composition comprising the antibody of claim 25 and a pharmaceutically acceptable carrier.~~
- ~~35. A kit comprising the antibody of claim 25, in a container, and instructions for use.~~
- ~~36. A vector comprising the nucleic acid sequence encoding the amino acid sequence set forth in SEQ ID NO.: 1.~~

- ~~37. An isolated cell comprising the vector of claim 37.~~
- ~~38. A method of manufacturing an antibody or a molecule, the method comprising: providing the cell of claim 38; and culturing said cell.~~
- ~~39. A method of manufacturing an antibody, the method comprising: providing an antibody of any one of claims 25-34.~~
- ~~40. A method for increasing an antibody serum half life in a dog, the method comprising: administering said dog a therapeutically effective amount of an antibody comprising a canine IgG constant domain, said canine IgG constant domain comprising at least one amino acid substitution relative to a wild type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat.~~
- ~~41. The method of claim 41, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).~~
- ~~42. The method of claim 41, wherein the antibody has an increased half life compared to the half life of an antibody having the wild type canine IgG constant domain.~~
- ~~43. The method of claim 41, wherein the antibody has a higher affinity for FcRn than an antibody having the wild type canine IgG constant domain.~~
- ~~44. The method of claim 41, wherein the antibody is a canine or caninized antibody.~~
- ~~45. The method of claim 41, wherein the antibody is IgG_A, IgG_B, IgG_C, or IgG_D.~~
- ~~46. The method of claim 41, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.~~
- ~~47. The method of claim 41, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.~~
- ~~48. The method of claim 41, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.~~

49. ~~The method of claim 41, wherein the IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.~~
50. ~~A fusion molecule comprising: a canine IgG constant domain fused to an agent, said canine IgG constant domain comprising at least one amino acid substitution relative to a wild type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat.~~
51. ~~The molecule of claim 51, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).~~
52. ~~The molecule of claim 51, wherein the molecule has an increased half life compared to the half life of a molecule having the wild type canine IgG constant domain.~~
53. ~~The molecule of claim 51, wherein the molecule has a higher affinity for FeRn than a molecule having the wild type canine IgG constant domain.~~
54. ~~The molecule of claim 51, wherein the molecule comprises a canine or caninized antibody.~~
55. ~~The molecule of claim 51, wherein the molecule comprises IgG_A, IgG_B, IgG_C, or IgG_D.~~
56. ~~The molecule of claim 51, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.~~
57. ~~The molecule of claim 51, wherein the IgG constant domain comprises an Fe constant region having CH3 domain.~~
58. ~~The molecule of claim 51, wherein the IgG constant domain comprises an Fe constant region having CH2 and CH3 domain.~~
59. ~~The molecule of claim 51, wherein the IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.~~
60. ~~A pharmaceutical composition comprising the molecule of claim 51 and a pharmaceutically acceptable carrier.~~

- ~~61. A kit comprising the molecule of claim 51, in a container, and instructions for use.~~
- ~~62. A modified IgG comprising: a canine IgG constant domain comprising the amino acid sequence set forth in SEQ ID NO.: 1, 65, or 66, wherein the modified IgG has an increased half life compared to the half life of an IgG having the wild type canine IgG constant domain.~~
12. The A fusion molecule comprising the modified IgG of claim 1.
- ~~63.13. An immunoglobulin molecule comprising the modified IgG of claim 63, wherein the increased half life is for a period ranging from about 25 days to about 35 days.1.~~
- ~~64. The modified IgG of claim 63, wherein the increased half life is for about 30 days.~~
- ~~65. A modified IgG comprising: a canine IgG constant domain comprising the amino acid sequence set forth in SEQ ID NO.: 1, 65, or 66, wherein the modified IgG maintains its therapeutic level for a long term.~~
- ~~66. The modified IgG of claim 66, wherein the modified IgG maintains its therapeutic level over a period ranging from about 1 month to about 7 months~~
- ~~67. The modified IgG of claim 66, wherein the modified IgG maintains its therapeutic level over said period upon subcutaneous delivery of said IgG to a canine subject.~~
14. An antibody comprising: a canine IgG constant domain comprising the amino acid sequence set forth in SEQ ID NO.: 1, 65, or 66, wherein the antibody has an increased half life compared to the half lifeUse of an immunoglobulin molecule for the manufacture of a medicament, wherein said immunoglobulin molecule is the molecule of claim 13.
- ~~68. Use of an antibody having the wild type canine IgG constant domain.~~
- ~~69. The antibody of claim 69, wherein the increased half life is for a period ranging from about 25 days to about 35 days.~~
- ~~70. The antibody of claim 69, wherein the increased half life is for about 30 days.~~

71. — ~~An antibody comprising: a canine IgG constant domain comprising the amino acid sequence set forth in SEQ ID NO.: 1, 65, or 66, wherein the antibody maintains its therapeutic level for a long term.~~
72. — ~~The antibody of claim 66, wherein the antibody maintains its therapeutic level over a period ranging from about 1 month to about 7 months~~
73. — ~~The antibody of claim 66, wherein the antibody maintains its therapeutic level over said period upon subcutaneous delivery of said antibody to a canine subject.~~
74. — ~~The antibody of any one of claims 25-34 and 69-74, wherein said antibody is an anti-IL31 or an anti-NGF antibody.~~
75. 15. ~~A method~~immunoglobulin molecule for increasing ~~an antibody's~~ serum half-life in a dog, the method comprising: administering said dog a therapeutically effective amount of an antibody comprising a canine IgG constant domain, said canine IgG constant domain comprising at least one amino acid substitution relative to a wild-type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat, and wherein said antibody is anti-IL31 antibody~~wherein said immunoglobulin molecule is the molecule of claim 13.~~
76. — ~~The method~~use of claim 76, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).
77. 16. ~~The method of claim 76~~15, wherein the ~~method~~molecule increases the half-life for a period ranging from about 25 days to about 35 days.
78. 17. ~~The antibody~~use of claim 7615, wherein the ~~method~~molecule increases the half-life for about 30 days.
79. — ~~A method for maintaining a therapeutic serum level of an antibody in a dog, the method comprising: administering said dog a therapeutically effective amount of an antibody comprising a canine IgG constant domain, said canine IgG constant domain comprising at least one amino acid substitution relative to a wild-type canine IgG constant domain,~~

wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat, and wherein said antibody is anti-IL31 antibody.

80. ~~The method of claim 80, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).~~
81. ~~The method of claim 80, wherein the method maintains the therapeutic serum level of said antibody in said dog over a period ranging from about 1 month to about 7 months.~~
82. ~~The method of claim 80, wherein the method maintains the therapeutic serum level over said period upon subcutaneous delivery of said antibody to said dog.~~
83. ~~A method for increasing an antibody serum half life in a dog, the method comprising: administering said dog a therapeutically effective amount of an antibody comprising a canine IgG constant domain, said canine IgG constant domain comprising at least one amino acid substitution relative to a wild type canine IgG constant domain, wherein said substitution is at amino acid residue 434, numbered according to the EU index as in Kabat, and wherein said antibody is anti-NGF antibody.~~
84. ~~The method of claim 84, wherein said substitution is a substitution of asparagine at position 434 with histidine (N434H).~~
85. ~~The method of claim 84, wherein the method increases the half life for a period ranging from about 10 days to about 35 days.~~
86. ~~The antibody of claim 84, wherein the method increases the half life for about 30 days.~~
87. ~~A method of treating an IL-31 mediated pruritic or allergic condition in a canine subject, the method comprising: administering to said subject a therapeutically effective amount of the anti-IL31 antibody of claim 75, thereby treating said IL-31 mediated pruritic or allergic condition in said canine subject.~~
88. ~~The method of claim 88, wherein the IL-31 mediated pruritic or allergic condition is a pruritic condition selected from the group consisting of atopic dermatitis, eczema, psoriasis, scleroderma, and pruritis.~~

89. ~~The method of claim 88, wherein the IL-31-mediated pruritic or allergic condition is an allergic condition is selected from the group consisting of allergic dermatitis, summer eczema, urticaria, heaves, inflammatory airway disease, recurrent airway obstruction, airway hyper responsiveness, chronic obstruction pulmonary disease, and inflammatory processes resulting from autoimmunity.~~
90. ~~The method of claim 88, wherein the antibody is administered bimonthly, once in three months, once in four months, once in five months, once in six months, or once in seven months.~~
91. ~~The method of claim 88, wherein the antibody is administered subcutaneously at a dosage less than 4.0 mg/kg of body weight.~~
92. ~~A method of treating a pain in a canine subject, the method comprising: administering to said subject a therapeutically effective amount of the anti-NGF antibody of claim 75, thereby treating said pain in said canine subject.~~
93. ~~The method of claim 93, wherein said pain is a chronic pain, an inflammatory pain, a post-operative incision pain, a neuropathic pain, a fracture pain, an osteoporotic fracture pain, a post-herpetic neuralgia, a cancer pain, a pain resulting from burns, a pain associated with wounds, a pain associated with trauma, a neuropathic pain, a pain associated with a musculoskeletal disorder, a rheumatoid arthritis, an osteoarthritis, an ankylosing spondylitis, a seronegative (non-rheumatoid) an arthropathies, a non-articular rheumatism, a periarticular disorder, or a peripheral neuropathy.~~
94. ~~The method of claim 93, wherein said pain is an osteoarthritis pain.~~
95. ~~The method of claim 93, wherein the antibody is administered bimonthly, once in three months, once in four months, once in five months, once in six months, or once in seven months.~~

96.18. The immunoglobulin molecule of claim 13, wherein said immunoglobulin is an anti-IL31 or an anti-NGF molecule.