

WHAT IS CLAIMED IS:

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 247, 252, 254, 256, 311, 312, 314, 431, 434, or 439,
5 numbered according to the Eu index as in Kabat.
2. The modified IgG of claim 1, wherein said constant domain comprising one or more of substitutions P247V, L252Y, L252P, L252W, L252A, L252D, L252G, L252H, L252I, L252K, L252M, L252N, L252Q, L252S, L252T, L252V, L252F, L252R, A254F, A254G, A254H, A254N, A254Q, A254R, A254W, A254C, A254D, A254I, A254K, A254L,
10 A254M, A254P, A254S, A254T, A254V, A254Y, T256H, T256I, T256K, T256L, T256Q, T256Y, T256A, T256C, T256D, T256F, T256G, T256M, T256N, T256P, T256R, T256S, T256V, T256W, T256E, Q311H, Q311R, Q311Y, Q311W, D312P, L314K, A431K, N434A, N434C, N434D, N434E, N434F, N434G, N434H, N434I, N434K, N434L, N434M, N434P, N434Q, N434R, N434S, N434T, N434V, N434W, N434Y, and E439K.
- 15 3. 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. 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
20 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. The modified IgG of claim 1, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.
- 25 9. The modified IgG of claim 1, wherein the wild-type canine IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.

10. A pharmaceutical composition comprising the modified IgG of claim 1 and a pharmaceutically acceptable carrier.
11. 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 247, 252, 254, 256, 311, 312, 314, 431, 434, or 439, numbered according to the EU index as in Kabat.
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13. The polypeptide of claim 12, wherein said constant domain comprising one or more of substitutions P247V, L252Y, L252P, L252W, L252A, L252D, L252G, L252H, L252I, L252K, L252M, L252N, L252Q, L252S, L252T, L252V, L252F, L252R, A254F, A254G, A254H, A254N, A254Q, A254R, A254W, A254C, A254D, A254I, A254K, A254L, A254M, A254P, A254S, A254T, A254V, A254Y, T256H, T256I, T256K, T256L, T256Q, T256Y, T256A, T256C, T256D, T256F, T256G, T256M, T256N, T256P, T256R, T256S, T256V, T256W, T256E, Q311H, Q311R, Q311Y, Q311W, D312P, L314K, A431K, N434A, N434C, N434D, N434E, N434F, N434G, N434H, N434I, N434K, N434L, N434M, N434P, N434Q, N434R, N434S, N434T, N434V, N434W, N434Y, and E439K.
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14. The polypeptide of claim 12, wherein the polypeptide has a higher affinity for FcRn than the polypeptide of the IgG having the wild-type canine IgG constant domain.
15. The polypeptide of claim 12, wherein the polypeptide is a polypeptide of a canine or caninized IgG.
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16. The polypeptide of claim 12, wherein the IgG is IgG_A, IgG_B, IgG_C, or IgG_D.
17. The polypeptide of claim 12, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.
18. The polypeptide of claim 12, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.
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19. The polypeptide of claim 12, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.
20. The polypeptide of claim 12, wherein the wild-type canine IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.
- 5 21. 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 247, 252, 254, 256, 311, 312, 314, 431, 434, or 439, numbered according to the EU index as in Kabat.
- 10 22. The antibody of claim 21, wherein said constant domain comprising one or more of substitutions P247V, L252Y, L252P, L252W, L252A, L252D, L252G, L252H, L252I, L252K, L252M, L252N, L252Q, L252S, L252T, L252V, L252F, L252R, A254F, A254G, A254H, A254N, A254Q, A254R, A254W, A254C, A254D, A254I, A254K, A254L, A254M, A254P, A254S, A254T, A254V, A254Y, T256H, T256I, T256K, T256L, T256Q, T256Y, T256A, T256C, T256D, T256F, T256G, T256M, T256N, T256P, T256R, T256S, T256V, T256W, T256E, Q311H, Q311R, Q311Y, Q311W, D312P, L314K, A431K, N434A, N434C, N434D, N434E, N434F, N434G, N434H, N434I, N434K, N434L, N434M, N434P, N434Q, N434R, N434S, N434T, N434V, N434W, N434Y, and E439K.
- 15 23. The antibody of claim 21, wherein the polypeptide has a higher affinity for FcRn than the polypeptide of the IgG having the wild-type canine IgG constant domain.
- 20 24. The antibody of claim 21, wherein the polypeptide is a polypeptide of a canine or caninized IgG.
25. The antibody of claim 21, wherein the IgG is IgG_A, IgG_B, IgG_C, or IgG_D.
26. The antibody of claim 21, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.
- 25 27. The antibody of claim 21, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.

28. The antibody of claim 21, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.
29. The antibody of claim 21, wherein the wild-type canine IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1.
- 5 30. A pharmaceutical composition comprising the antibody of claim 29 and a pharmaceutically acceptable carrier.
31. A kit comprising the antibody of claim 29, in a container, and instructions for use.
32. A vector comprising the nucleic acid sequence encoding the amino acid sequence of antibody of claim 21, wherein the wild-type canine IgG constant domain comprises the
10 amino acid sequence set forth in SEQ ID NO.: 1.
33. An isolated cell comprising the vector of claim 32.
34. A method of manufacturing an antibody or a molecule, the method comprising: providing the cell of claim 33; and culturing said cell.
35. A method of manufacturing an antibody, the method comprising: providing an antibody of
15 any one of claims 21-19.
36. A fusion molecule 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 247, 252, 254, 256, 311, 312, 314, 431, 434, or 439, numbered according to the EU index as in Kabat.
- 20 37. The molecule of claim 36, wherein said constant domain comprising one or more of substitutions P247V, L252Y, L252P, L252W, L252A, L252D, L252G, L252H, L252I, L252K, L252M, L252N, L252Q, L252S, L252T, L252V, L252F, L252R, A254F, A254G, A254H, A254N, A254Q, A254R, A254W, A254C, A254D, A254I, A254K, A254L, A254M, A254P, A254S, A254T, A254V, A254Y, T256H, T256I, T256K, T256L, T256Q,
25 T256Y, T256A, T256C, T256D, T256F, T256G, T256M, T256N, T256P, T256R, T256S, T256V, T256W, T256E, Q311H, Q311R, Q311Y, Q311W, D312P, L314K, A431K,

N434A, N434C, N434D, N434E, N434F, N434G, N434H, N434I, N434K, N434L, N434M, N434P, N434Q, N434R, N434S, N434T, N434V, N434W, N434Y, and E439K.

38. The molecule of claim 36, wherein the polypeptide has a higher affinity for FcRn than the polypeptide of the IgG having the wild-type canine IgG constant domain.
- 5 39. The molecule of claim 36, wherein the polypeptide is a polypeptide of a canine or caninized IgG.
40. The molecule of claim 36, wherein the IgG is IgG_A, IgG_B, IgG_C, or IgG_D.
41. The molecule of claim 36, wherein the IgG constant domain is a constant domain of IgG_A, IgG_B, IgG_C, or IgG_D.
- 10 42. The molecule of claim 36, wherein the IgG constant domain comprises an Fc constant region having CH3 domain.
43. The molecule of claim 36, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.
44. The molecule of claim 36, wherein the wild-type canine IgG constant domain comprises the
15 amino acid sequence set forth in SEQ ID NO.: 1.
45. A pharmaceutical composition comprising the molecule of claim 36 and a pharmaceutically acceptable carrier.
46. A kit comprising the molecule of claim 36, in a container, and instructions for use.
47. The modified IgG of claim 1, wherein at least one of said mutations improves a biophysical
20 property.
48. The modified IgG of claim 47, wherein said biophysical property is polyreactivity.
49. The polypeptide of claim 12, wherein at least one of said mutations improves a biophysical property.
50. The polypeptide of claim 49, wherein said biophysical property is polyreactivity.

51. The antibody of claim 21, wherein at least one of said mutations improves a biophysical property.

52. The antibody of claim 51, wherein said biophysical property is polyreactivity.

53. The molecule of claim 36, wherein at least one of said mutations improves a biophysical property.

54. The molecule of claim 53, wherein said biophysical property is polyreactivity.

55. ~~Use of 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 amino acid residue 252, 254, 256, 311, 434, or 439, numbered according to the Eu index as in Kabat, in the manufacture of a medicament for increasing an antibody serum half-life in a dog, wherein said medicament is to be administered.~~

56. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises one or more of mutations L252F, L252R, L252Y, L252M, A254T, A254S, T256E, Q311W, N434H, N434Y, and E439K.

57. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the mutations selected from a group: (1) L252F; (2) L252R, N434H and Q311W; (3) L252R; (4) Q311W; (5) L252R, A254T, T256E and N434H; (6) L252Y and A254T; or (7) L252M, A254S and E439K.

58. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the mutation L252F.

59. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the combination of mutations L252R, N434H and Q311W.

60. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the mutation L252R or Q311W.
61. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the combination of mutations L252R, A254T, T256E and N434H.
- 5 62. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the combination of mutations L252Y and A254T.
63. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain comprises the combination of mutations L252M, A254S and E439K.
64. The ~~method-use~~ of claim 55, wherein said canine IgG constant domain has a higher serum
10 half-life than an IgG having the wild-type canine IgG constant domain.
65. The ~~method-use~~ of claim 55, wherein the IgG is IgGA, IgGB, IgGC, or IgGD.
66. The ~~method-use~~ of claim 55, wherein the IgG constant domain is a constant domain of IgGA, IgGB, IgGC, or IgGD.
67. The ~~method-use~~ of claim 55, wherein the IgG constant domain comprises an Fc constant
15 region having CH3 domain.
68. The ~~method-use~~ of claim 55, wherein the IgG constant domain comprises an Fc constant region having CH2 and CH3 domain.
69. The ~~method-use~~ of claim 55, wherein the wild-type canine IgG constant domain comprises the amino acid sequence set forth in SEQ ID NO.: 1, 2, 3, or 4.
- 20 70. The ~~method-use~~ of claim 55, wherein said antibody is an anti-IL31 antibody.
71. Use of 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 55, in the manufacture of a medicament for treating an IL-31-mediated pruritic or allergic condition in a canine subject thereby treating

~~said IL-31-mediated pruritic or allergic condition in said canine subject,~~ wherein said medicament is to be administered to said subject.

72. The ~~method~~ use of claim 55, 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.