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Summary

[0031] In one aspect, the present invention refers to an isolated anti-IL-8 antibody that binds to human IL-8, which comprises (a) HVR-H1 comprising the amino acid sequence of SEQ ID NO: 67, (b) HVR-H2 comprising the amino acid sequence of SEQ ID NO: 73, (c) HVR-H3 comprising the amino acid sequence of SEQ ID NO: 74, (d) HVR-L1 comprising the amino acid sequence of SEQ ID NO: 70, (e) HVR-L2 comprising the amino acid sequence of SEQ ID NO: 75 and (f) HVR-L3 comprising the amino acid sequence of SEQ ID NO: 76, wherein the dissociation constant ratio against human IL-8 between pH 5.8 and pH 7.4, $[KD(pH\ 5.8)/KD(pH\ 7.4)]$, of the anti-IL-8 antibody is 30 or more. In another aspect, the present invention refers to an anti-IL-8 antibody, which comprises the heavy chain variable region of SEQ ID NO: 78 and the light chain variable region of SEQ ID NO: 79, and is humanized IgG antibody. In another aspect, the present invention refers to an anti-IL-8 antibody, which comprises the heavy chain comprising the amino acid sequence of SEQ ID NO: 80 or SEQ ID NO: 81 and the light chain comprising the amino acid sequence of SEQ ID NO: 82. In another aspect, the present invention refers to an isolated nucleic acid encoding the anti-IL-8 antibody of the present invention. In still another aspect, the present invention refers to a vector comprising the nucleic acid of the present invention. In one other aspect, the present invention refers to a host cell comprising the vector of the present invention. In another aspect, the present invention refers to a method for producing an anti-IL-8 antibody, which comprises culturing the host cell of the present invention. In one aspect, the present invention refers to a pharmaceutical composition comprising the anti-IL-8 antibody of the present invention and a pharmaceutically acceptable carrier. In another aspect, the present invention refers to an isolated anti-IL8 antibody according to the present invention for use in therapy. In another aspect, the present invention refers to the use of the anti-IL-8 antibody of the present invention in the manufacture of a pharmaceutical composition for treating a disease selected from the group consisting of inflammatory keratosis, atopic dermatitis, contact dermatitis, chronic rheumatoid arthritis, systemic lupus erythematosus (SLE), Behcet disease, Crohn's disease, ulcerative colitis, hepatitis B, hepatitis C, alcoholic hepatitis, allergic hepatitis induced by drugs, glomerular nephritis, bronchitis, asthma, atherosclerosis, multiple sclerosis, oral ulcer, chorditis, inflammation induced by an artificial organ or artificial blood vessel, a malignant tumor, sepsis caused by infection, cystic fibrosis, pulmonary fibrosis and acute lung injury. In one nonexclusive example, a non-limited objective of examples of Disclosure A is to provide molecules with improved pharmacokinetic properties over antibodies, such as ion concentration-dependent antigen binding properties that improve antibody half-life and/or antigen clearance from the plasma.

[0032] In one nonexclusive example, a non-limited objective of examples of Disclosure B is to provide, safe and more favorable Fc region variants that have increased half-life and decreased binding to pre-existing anti-drug antibodies (ADAs).

[0033] In one nonexclusive example, a non-limited objective of examples of Disclosure C is to provide anti-IL-8 antibodies that have pH-dependent binding affinity towards IL-8. An additional example relates to anti-IL-8 antibodies that

Claims

1. An isolated anti-IL-8 antibody that binds to human IL-8, which comprises
 - (a) HVR-H1 comprising the amino acid sequence of SEQ ID NO: 67,
 - (b) HVR-H2 comprising the amino acid sequence of SEQ ID NO: 73,
 - (c) HVR-H3 comprising the amino acid sequence of SEQ ID NO: 74,
 - (d) HVR-L1 comprising the amino acid sequence of SEQ ID NO: 70,
 - (e) HVR-L2 comprising the amino acid sequence of SEQ ID NO: 75 and
 - (f) HVR-L3 comprising the amino acid sequence of SEQ ID NO: 76,wherein the dissociation constant ratio against human IL-8 between pH 5.8 and pH 7.4, $[KD(pH\ 5.8)/KD(pH\ 7.4)]$, of the anti-IL-8 antibody is 30 or more.
2. The anti-IL-8 antibody of claim 1, wherein the anti-IL-8 antibody is humanized anti-IL-8 antibody.
3. The anti-IL-8 antibody of claim 1, wherein the anti-IL-8 antibody is mouse antibody-derived humanized anti-IL-8 antibody.
4. An anti-IL-8 antibody, which comprises the heavy chain variable region of SEQ ID NO: 78 and the light chain variable region of SEQ ID NO: 79, and is humanized IgG antibody.
5. An anti-IL-8 antibody, which comprises the heavy chain comprising the amino acid sequence of SEQ ID NO: 80 or SEQ ID NO: 81 and the light chain comprising the amino acid sequence of SEQ ID NO: 82.
6. An isolated nucleic acid encoding the anti-IL-8 antibody of any one of claims 1 to 5.
7. A vector comprising the nucleic acid of claim 6.
8. A host cell comprising the vector of claim 7.
9. A method for producing an anti-IL-8 antibody, which comprises culturing the host cell of claim 8.

10. The method of claim 9, which further comprises isolating the antibody from the host cell culture.
11. A pharmaceutical composition comprising the anti-IL-8 antibody of any one of claims 1 to 5 and a pharmaceutically acceptable carrier.
12. An isolated anti-IL8 antibody according to any one of claims 1 to 5 for use in therapy.
13. Use of the anti-IL-8 antibody of any one of claims 1 to 5 in the manufacture of a pharmaceutical composition for treating a disease selected from the group consisting of inflammatory keratosis, atopic dermatitis, contact dermatitis, chronic rheumatoid arthritis, systemic lupus erythematosus (SLE), Behcet disease, Crohn's disease, ulcerative colitis, hepatitis B, hepatitis C, alcoholic hepatitis, allergic hepatitis induced by drugs, glomerular nephritis, bronchitis, asthma, atherosclerosis, multiple sclerosis, oral ulcer, chorditis, inflammation induced by an artificial organ or artificial blood vessel, a malignant tumor, sepsis caused by infection, cystic fibrosis, pulmonary fibrosis and acute lung injury.