CLAIMS

1. Use of two chimeric proteins produced in insect cells for the manufacture of a composition for altering a B cell lymphoma in a patient, wherein a first chimeric protein comprises at least a portion of a V_H region and at least a portion of an immunoglobulin constant region wherein said V_H region is isolated from a B cell clone from said patient having a B cell lymphoma and a second chimeric protein comprises at least a portion of a V_L region and at least a portion of an immunoglobulin constant region wherein said V_L region is isolated from a B cell clone from said patient having said B cell lymphoma.

2. The use according to claim 1, wherein said chimeric proteins are produced by a method comprising the steps of:
(a) inserting a gene encoding said portion of a V_H region and a gene encoding at least a portion of an immunoglobulin constant region into an expression vector to allow the expression of said first chimeric protein; and
(b) inserting a gene encoding said portion of a V_L region and a gene encoding at least a portion of an immunoglobulin constant region into an expression vector to allow the expression of said second chimeric protein;
(c) producing said chimeric protein by introducing said expression vector into an insect cell line; and
(d) isolating said chimeric proteins.

3. The use according to claim 1, wherein said immunoglobulin constant region in said first chimeric protein is a human $IgG\gamma_1$ constant region, a human $IgG\gamma_2$ constant region, a human $IgG\gamma_3$ constant region, a human $IgG\gamma_4$ constant region, a human IgA_1 constant region, a human IgA_2 constant region, a human IgM constant region, a human IgD constant region, or a human IgE chain constant region.

4. The use according to claim 1, wherein said immunoglobulin constant region in said second chimeric protein is a human κ chain constant region or a human λ chain constant region.

5. The use according to claim 1, wherein said immunoglobulin constant region in said first chimeric protein is a human IgGγ_1 constant region.

6. The use according to claim 1, wherein said immunoglobulin constant region in said second chimeric protein is a human κ chain constant region.

7. The use according to claim 1, wherein said immunoglobulin constant region in said second chimeric protein is a human λ chain constant region.

8. The use according to any one of the preceding claims wherein said V_L region and/or said V_H region is an entire variable region.

9. The use according to any one of the proceeding claims, wherein said composition further comprises a chimeric protein conjugated to a carrier protein.

10. The use according to claim 9, wherein said carrier protein is keyhole limpet hemocyanin (KLH).

11. The use according to any one of the preceding claims, wherein said composition is for co-administration with a cytokine or chemokine.

12. The use according to claim 11, wherein said chemokine is granulocyte macrophage-colony stimulating factor (GM-CSF).

13. The use according to claim 11, wherein said chemokine is monocyte chemotactic protein 3 (MCP3).

14. The use according to any one of the preceding claims, wherein the composition is for administration by inhalation, oral or transdermal delivery.

15. The use according to claim 2, wherein said expression vector is a baculovirus expression vector.

16. The use according to claim 15, wherein said baculovirus expression vector comprises a honey bee melittin secretory signal sequence and a human placental alkaline phosphatase secretory signal sequence.

17. The use according to claim 16, wherein said baculovirus expression vector further comprises a baculovirus p10 promotor and polyhedrin promotor, wherein said p10 promotor controls a honey bee melittin secretory signal sequence, and said polyhedrin promotor controls a human placental alkaline phosphatase secretory signal sequence.

18. The use according to claim 17, wherein a gene encoding a chimeric protein comprising a V_H region and a first immunoglobulin constant region is controlled by said p10 promotor in said baculovirus expression vector, and a gene encoding a chimeric protein comprising a V_L region and a second immunoglobulin constant region is controlled by said polyhedrin promotor in said baculovirus expression vector.

19. The use according to claim 1 or claim 2, wherein said insect cell line is a *Trichoplusia ni (Hi-5)* or a *Spodoptera frugiperda (sf9)* cell line.

20. The use according to any of claims 1 to 8, wherein said chimeric proteins are analyzed for expression by ELISA.

21. The use according to any one of claims 1 to 8, wherein said chimeric proteins are isolated using a protein selected from the group consisting of protein A, protein G, protein L, and another protein able to bind to an immunoglobulin binding domain.

22. The use according to claim 21, wherein said other protein able to bind an immunoglobulin binding domain is an anti-immunoglobulin antibody.

23. A baculovirus expression vector comprising both (a) a portion of a gene encoding either a κ or λ light chain constant region operatively linked to a secretory signal sequence and a promotor, and (b) a portion of gene encoding an $IgG_{\gamma I}$ heavy chain constant region operatively linked to a secretory signal sequence and a promotor.

24. A baculovirus expression vector according to claim 23, wherein the expression vector comprises a first chimeric gene encoding a portion of a V_L region and a portion of a κ light chain, both operatively linked to a secretory signal sequence and a promotor, or a chimeric gene encoding a portion of a V_L region and a portion of a λ light chain, both operatively linked to a secretory signal sequence and a promotor; and a second chimeric gene encoding a portion of a V_H region and a portion of an $IgG\gamma_1$ heavy chain, both operatively linked to a secretory signal sequence and a promotor.

25. A baculovirus expression vector according to claim 23 or 24, wherein the secretory signal sequence of said first chimeric protein is a human placental alkaline phosphatase secretory signal sequence, and the promotor of said first chimeric protein is a polyhedrin promotor.

26. A baculovirus expression vector according to claim 23 or 24, wherein the secretory signal sequence of said second chimeric protein is a honey bee melittin secretory signal sequence, and the promotor of said second chimeric protein is a P10 promotor.

27. The use according to claim 1 wherein said B cell lymphoma is non-Hodgkins lymphoma.

CLAIMS

1. Use of two chimeric proteins produced in insect cells for the manufacture of a composition for altering a B cell lymphoma in a patient, wherein a first chimeric protein comprises at least a portion of a V_H region and at least a portion of an immunoglobulin constant region wherein said V_H region is isolated from a B cell clone from said patient having a B cell lymphoma and a second chimeric protein comprises at least a portion of a V_L region and at least a portion of an immunoglobulin constant region wherein said V_L region is isolated from a B cell clone from said patient having said B cell lymphoma, wherein said composition further comprises the carrier protein keyhole limpet hemocyanin (KLH) conjugated to the chimeric proteins and granulocyte macrophage-colony stimulating factor (GM-CSF).

2. The use according to claim 1, wherein said chimeric proteins are produced by a method comprising the steps of:

(a) inserting a gene encoding said portion of a V_H region and a gene encoding at least a portion of an immunoglobulin constant region into an expression vector to allow the expression of said first chimeric protein; and

(b) inserting a gene encoding said portion of a V_L region and a gene encoding at least a portion of an immunoglobulin constant region into an expression vector to allow the expression of said second chimeric protein;

(c) producing said chimeric protein by introducing said expression vector into an insect cell line; and

(d) isolating said chimeric proteins.

3. The use according to claim 1, wherein said immunoglobulin constant region in said first chimeric protein is a human $IgG\gamma_1$ constant region, a human $IgG\gamma_2$ constant region, a human $IgG\gamma_3$ constant region, a human $IgG\gamma_4$ constant region, a human IgA_1 constant region, a human IgA_2 constant region, a human I gM constant region, a human IgD constant region, or a human IgE chain constant region.

4. The use according to claim 1, wherein said immunoglobulin constant region in said second chimeric protein is a human κ chain constant region or a human λ, chain constant region.

5. The use according to claim 1, wherein said immunoglobulin constant region in said first chimeric protein is a human IgGγ_1 constant region.

6. The use according to claim 1, wherein said immunoglobulin constant region in said second chimeric protein is a human κ chain constant region.

7. The use according to claim 1, wherein said immunoglobulin constant region in said second chimeric protein is a human λ chain constant region.

8. The use according to any one of the preceding claims wherein said V_L region and/or said V_H region is an entire variable region.

9. The use according to any one of the preceding claims, wherein said composition is for co-administration with a cytokine or chemokine.

10. The use according to claim 9, wherein said chemokine is monocyte chemotactic protein 3 (MCP3).

11. The use according to any one of the preceding claims, wherein the composition is for administration by inhalation, oral or transdermal delivery.

12. The use according to claim 2, wherein said expression vector is a baculovirus expression vector.

13. The use according to claim 12, wherein said baculovirus expression vector comprises a honey bee melittin secretory signal sequence and a human placental alkaline phosphatase secretory signal sequence.

14. The use according to claim 13, wherein said baculovirus expression vector further comprises a baculovirus p10 promoter and polyhedrin promoter, wherein said p10 promoter controls a honey bee melittin secretory signal sequence, and said polyhedrin promoter controls a human placental alkaline phosphatase secretory signal sequence.

15. The use according to claim 14, wherein a gene encoding a chimeric protein comprising a V_H region and a first immunoglobulin constant region is controlled by said p10 promoter in said baculovirus expression vector, and a gene encoding a chimeric protein comprising a V_L region and a second immunoglobulin constant region is controlled by said polyhedrin promoter in said baculovirus expression vector.

16. The use according to claim 1 or claim 2, wherein said insect cell line is a *Trichoplusia ni (Hi-5)* or a *Spodoptera frugiperda (sf9)* cell line.

17. The use according to any of claims 1 to 8, wherein said chimeric proteins are analyzed for expression by ELISA.

18. The use according to any one of claims 1 to 8, wherein said chimeric proteins are isolated using a protein selected from the group consisting of protein A, protein G, protein L, and another protein able to bind to an immunoglobulin binding domain.

19. The use according to claim 18, wherein said other protein able to bind an immunoglobulin binding domain is an anti-immunoglobulin antibody.

20. A baculovirus expression vector for expression in insect cells, comprising both (a) a first chimeric gene encoding a portion of a V_L region and a portion of a κ light chain, both operatively linked to a secretory signal sequence and a promoter, or a chimeric gene encoding a portion of a V_L region and a portion of a λ light chain, both operatively linked to a secretory signal sequence and a promoter; and (b) a second chimeric gene encoding a portion of a V_H region and a portion of an IgGγ_1 heavy chain, both operatively linked to a secretory signal sequence and a promoter.

21. A baculovirus expression vector according to claim 20, wherein the secretory signal sequence of said first chimeric protein is a human placental alkaline phosphatase secretory signal sequence, and the promoter of said first chimeric protein is a polyhedrin promoter.

22. A baculovirus expression vector according to claim 20, wherein the secretory signal sequence of said second chimeric protein is a honey bee melittin secretory signal sequence, and

the promoter of said second chimeric protein is a p10 promoter.

23. The use according to claim 1 wherein said B cell lymphoma is non-Hodgkins lymphoma.