CLAIMS

1. A polypeptide capable of binding human complement component 5 (C5), said polypeptide being selected from:

(a) a polypeptide comprising the amino acid sequence
[*BM*]-[L2]-QS$X_{42}X_{43}$LLX_{46}EAKKL$X_{52}X_{53}X_{54}$Q
wherein, independently of each other,
[*BM*] is a C5 binding motif;
[L2] is selected from DDPS and RQPE;
X_{42} is selected from A and S;
X_{43} is selected from N and E;
X_{46} is selected from A, S and C;
X_{52} is selected from E, N and S;
X_{53} is selected from D, E and S, provided that X_{53} is not D when X_{52} is N; and
X_{54} is selected from A and S; and

(b) a polypeptide which has at least 89 % amino acid sequence identity with the polypeptide of (a), provided that X_{53} is not D when X_{52} is N.

2. The polypeptide according to claim 1, said polypeptide being selected from:

(a) a polypeptide comprising the amino acid sequence
AEAKYAK-[*BM*]-[L2]-QS$X_{42}X_{43}$LLX_{46}EAKKL$X_{52}X_{53}X_{54}$QAP
wherein, independently of each other,
[*BM*], [L2], X_{42}, X_{43}, X_{46}, X_{52}, X_{53} and X_{54} are as defined in claim 1; and

(b) a polypeptide which has at least 90 % amino acid sequence identity with the polypeptide of (a), provided that X_{53} is not D when X_{52} is N.

3. The polypeptide according to claim 1 or 2, wherein X_{52} and X_{53} are independently selected from E and S.

4. The polypeptide according to claim 3, wherein (a) X_{52} is S and X_{53} is E, or (b) X_{52} is E and X_{53} is S.

5. The polypeptide according to claim 1 or 2, wherein X_{52} is S and X_{53} is D.

6. The polypeptide according to claim 1 or 2, wherein X_{52} is N and X_{53} is E.

7. The polypeptide according to any one of claims 1 to 6, wherein [*BM*] is a polypeptide selected from:

(a) a polypeptide comprising the amino acid sequence $EX_9X_{10}X_{11}A\ X_{13}X_{14}EIDX_{18}LPNLX_{23}X_{24}X_{25}QWX_{28}AFIX_{32}X_{33}LX_{35}$; wherein, independently of each other,
X_9 is selected from H, Q, S, T and V;
X_{10} is selected from I, L, M and V;
X_{11} is selected from A, D, E, H, K, L, N, Q, R, S, T and Y;
X_{13} is selected from N and W;
X_{14} is selected from A, D, E, H, N, Q, R, S and T;
X_{18} is selected from A, E, G, H, K, L, Q, R, S, T and Y;
X_{23} is selected from N and T;
X_{24} is selected from I, L and V;
X_{25} is selected from A, D, E, H, K, N, Q, R, S and T;
X_{28} is selected from I, L and V;
X_{32} is selected from D, E, G, H, N, S and T;
X_{33} is selected from K and S;
X_{35} is selected from A, D, E, H, N, Q, S, T and Y; and

(b) a polypeptide which has at least 85 % amino acid sequence identity with the polypeptide of (a).

8. The polypeptide according to any one of claims 1 to 7 being selected from:

(a) a polypeptide comprising the amino acid sequence
AEAKYAKEX$_9$X$_{10}$X$_{11}$AX$_{13}$X$_{14}$EIDX$_{18}$LPNLX$_{23}$X$_{24}$X$_{25}$QWX$_{28}$AFIX$_{32}$X$_{33}$LX$_{35}$-[L2]-QSX$_{42}$X$_{43}$LLX$_{46}$EAKKLX$_{52}$X$_{53}$X$_{54}$QAP;
wherein, independently of each other,
X$_9$ is selected from H, Q, S, T and V;
X$_{10}$ is selected from I, L, M and V;
X$_{11}$ is selected from A, D, E, H, K, L, N, Q, R, S, T and Y;
X$_{13}$ is selected from N and W;
X$_{14}$ is selected from A, D, E, H, N, Q, R, S and T;
X$_{18}$ is selected from A, E, G, H, K, L, Q, R, S, T and Y;
X$_{23}$ is selected from N and T;
X$_{24}$ is selected from I, L and V;
X$_{25}$ is selected from A, D, E, H, K, N, Q, R, S and T;
X$_{28}$ is selected from I, L and V;
X$_{32}$ is selected from D, E, G, H, N, S and T;
X$_{33}$ is selected from K and S;
X$_{35}$ is selected from A, D, E, H, N, Q, S, T and Y;
[L2] is selected from DDPS and RQPE;
X$_{42}$ is selected from A and S;
X$_{43}$ is selected from N and E;
X$_{46}$ is selected from A, S and C;
X$_{52}$ is selected from E, N and S;
X$_{53}$ is selected from D, E and S, provided that X$_{53}$ is not D when X$_{52}$ is N; and
X$_{54}$ is selected from A and S; and

(b) a polypeptide which has at least 90 % amino acid sequence identity with the polypeptide of (a), provided that X$_{53}$ is not D when X$_{52}$ is N.

9. The polypeptide according to claim 7 or 8, wherein at least one of the following conditions is fulfilled:

X_9 is V,
X_{10} is L,
X_{11} is E,
X_{13} is W,
X_{14} is D,
X_{18} is R,
X_{23} is T,
X_{24} is I,
X_{25} is E,
X_{28} is L,
X_{32} is N,
X_{33} is K,
X_{35} is D,
[L2] is DDPS,
X_{42} is S,
X_{43} is E,
X_{46} is S,
X_{54} is S.

10. The polypeptide according to any one of claims 1 to 9, wherein [*BM*] comprises an amino acid sequence selected from the group consisting of positions 1-28 in SEQ ID NOS: 1-248.

11. The polypeptide according to claim 10, wherein [*BM*] comprises the amino acid sequence shown as positions 1-28 in SEQ ID NO: 1.

12. The polypeptide according to any one of claims 1 to 11, selected from a polypeptide comprising the amino sequence shown as SEQ ID NO: 260, SEQ ID NO: 265, SEQ ID NO: 266, or SEQ ID NO: 267.

13. A compound capable of binding C5, said compound comprising:
    a. at least one C5 binding polypeptide according to any one of the preceding claims;
    b. at least one albumin binding domain of streptococcal protein G, or a derivative thereof; and
    c. optionally, at least one linking moiety for linking said at least one albumin binding domain or derivative thereof to the C or N terminal of said at least one C5 binding polypeptide.

14. The compound according to claim 13, wherein the albumin binding domain comprises the amino acid sequence shown as SEQ ID NO: 250.

15. The compound according to claim 13 or 14, wherein the linking moiety is a peptide comprising the amino acid sequence $KVX_{60}GS$, wherein X_{60} is selected from D, E and A.

16. The compound according to claim 15, wherein X_{60} is D.

17. The compound according to claim 16, wherein the compound is a polypeptide comprising the amino sequence shown as SEQ ID NO: 253.

18. The compound according to claim 15, wherein X_{60} is E.

19. The compound according to claim 18, wherein the compound is a polypeptide comprising the amino sequence shown as SEQ ID NO: 261, SEQ ID NO: 263, SEQ ID NO: 264, SEQ ID NO: 269 or SEQ ID NO: 270.

20. The compound according to claim 15, wherein X_{60} is A.

21. The compound according to claim 20, wherein the compound is a polypeptide comprising the amino sequence shown as SEQ ID NO: 262.

22. The compound according to claim 15, wherein the linking moiety is absent.

23. A compound capable of binding C5, said compound comprising:

a. at least one C5 binding polypeptide, said polypeptide being selected from:

a-1. a polypeptide comprising the amino acid sequence
[*BM*]-[L2]-QS$X_{42}X_{43}$LLX_{46}EAKKL$X_{52}X_{53}X_{54}$Q
wherein, independently of each other,
[*BM*] is a C5 binding motif;
[L2] is selected from DDPS and RQPE;
X_{42} is selected from A and S;
X_{43} is selected from N and E;
X_{46} is selected from A, S and C;
X_{52} is selected from E, N and S;
X_{53} is selected from D, E and S;
X_{54} is selected from A and S; and

a-2. a polypeptide which has at least 89 % amino acid sequence identity with the polypeptide of a-1;

b. at least one albumin binding domain of streptococcal protein G, or a derivative thereof; and

c. at least one linking moiety for linking said at least one albumin binding domain or derivative thereof to the C or N terminal of said at least one C5 binding polypeptide; wherein the linking moiety comprises KVEGS or KVAGS; or wherein said linking moiety is absent.

24. A compound capable of binding C5, said compound comprising:

a. at least one C5 binding polypeptide, said polypeptide being:

a-1. a polypeptide comprising the amino acid sequence
[*BM*]-[L2]-QS$X_{42}X_{43}$LLX_{46}EAKKL$X_{52}X_{53}X_{54}$Q
wherein, independently of each other,
[*BM*] is a C5 binding motif;
[L2] is RQPE;

X_{42} is selected from A and S;
X_{43} is selected from N and E;
X_{46} is selected from A, S and C;
X_{52} is selected from E, N and S;
X_{53} is selected from D, E and S;
X_{54} is selected from A and S; and

b. at least one albumin binding domain of streptococcal protein G, or a derivative thereof; and

c. optionally, at least one linking moiety for linking said at least one albumin binding domain or derivative thereof to the C or N terminal of said at least one C5 binding polypeptide.

25. The C5 binding polypeptide according to any one of claims 1-12 or the C5 binding compound according to any one of claims 13-24 for use in therapy.

26. The C5 binding polypeptide according to any one of claims 1-12 or the C5 binding compound according to any one of claims 13-24 for use in treatment and/or prophylaxis of a C5-related condition.

27. The C5 binding polypeptide for use or the C5 binding compound for use according to claim 26, wherein said C5-related condition is a condition selected from inflammatory diseases; autoimmune diseases; infectious diseases; cardiovascular diseases; neurodegenerative disorders; graft injury; eye diseases; kidney diseases; pulmonary diseases; haematological diseases such as paroxysmal nocturnal hemoglobinuria (PNH); allergic diseases and dermatological diseases.

28. The C5 binding polypeptide for use or the C5 binding compound for use according to any one of claims 25-27, wherein said C5 binding polypeptide or compound is administered intravenously, subcutaneously, by inhalation, nasally, orally, intravitreally, or topically.