CLAIMS:

1. A modified factor VII (FVII) polypeptide, wherein

the FVII polypeptide has only 1, 2, 3, 4, 5, 6 or 7 amino acid replacements compared to an unmodified FVII polypeptide that comprises the sequence of amino acids set forth in any SEQ ID NOS:1-3 and 18-74;

one amino acid replacement is at a position corresponding to position 286 in a FVII polypeptide having the sequence of amino acids set forth in SEQ ID NO:3; and

the replacement at position 286 is replacement by an arginine (Arg, R) that results in a modified FVII polypeptide that exhibits increased coagulant activity compared to the FVII polypeptide that does not have the modification at position 286.

2. The modified FVII polypeptide of claim 1 that is an activated FVIIa polypeptide.

3. The modified FVII polypeptide of claim 1 or claim 2, wherein the unmodified FVII polypeptide comprises the sequence of amino acids set forth in any of SEQ ID NOS:1-3.

4. The modified FVII polypeptide of claim 1 or claim 2, wherein the unmodified FVII polypeptide comprises the sequence of amino acids set forth in SEQ ID NO:3.

5. The modified FVII polypeptide of claim 1 or claim 2, wherein the unmodified FVII polypeptide consists of the sequence of amino acids set forth in SEQ ID NO:3.

6. A modified FVII polypeptide of any of claims 1-5, comprising the amino acid replacement 286R.

7. The modified FVII polypeptide of any of claims 1-6, wherein an amino acid replacement in addition to replacement corresponding to the replacement 286R is at a position corresponding to a position selected from among 51, 52, 54, 60, 66, 68, 109, 119, 122, 124, 130, 132, 158, 161, 175, 196, 197, 199, 202, 216, 222, 237, 239, 257, 286, 287, 290 292, 294, 296, 305, 314, 318, 321, 337, 341, 366, 373, 374, 394, 395 and 396.

8. The modified FVII polypeptide of any of claims 1-7, comprising an amino acid replacement selected from among D196K, D196R, D196A, D196Y, D196F, D196W, D196L, D196I, K197Y, K197A, K197E, K197D, K197L, K197M, K197I, K197V, K197F, K197W, K199A, K199D, K199E, G237W, G237T, G237I, G237V, T239A, R290A, R290E, R290D, R290N, R290Q, R290K, R290M, R290V, K341E, K341R, K341Q, K341N, K341M, K341D, T239S, T239N, T239Q, T239V, T239L, T239H, T239I, L287T, P321K, P321E, P321Y, P321S, Q366D, Q366E, Q366N, Q366T, Q366S, Q366V, Q366I, Q366L, Q366M, H373D, H373E, H373S, H373L, H373I, H373F, H373A, K161S, K161A, K161V, H216S, H216A, H216K, H216R, S222A, S222K, S222V, S222N, S222E, S222D, H257A, H257S, S52A, S60A, E394N, P395A, R396S, R202S, A292N, A294S, G318N, A175S, K109N,

A122N, G124S, A51N, T130N, E132S, S52N, P54S, S119N, L121S, T128N, P129A, Q66N, Y68S, V158T, V158D, L287T and E296V.

9. The modified FVII polypeptide of any of claims 1-6, comprising amino acid replacements selected from among Q286R, Q286R/H257A, Q286R/S222A, Q286R/S222A/H257A, Q286R/S222A/Gla Swap FIX, Q286R/H257A/Gla Swap FIX, Q286R/S222A/H257A/Gla Swap FIX, Q286R/Q366V, Q286R/A292N/A294S/Q366V, A175S/Q286R/Q366V, S222A/Q286R/Q366V, H257S/Q286R, H257S/Q286R/Q366V, S222A/H257A/Q286R/Q366V, Q286R/H373A, S222A/H257A/Q286R/M158Q, Q286R/K341D, Q286R/Q366D, Q286R/Q366N, Q286R/H373F, T128N/P129A/Q286R, T128N/P129A/Q286R/H373F, S52A/S60A/Q286R, S52A/S60A/Q286R/H373F/, T239V/Q286R, T239V/Q286R/H373F, T239I/Q286R/H373F, T128N/P129A/A175S/Q286R A122N/G124S/A175S/Q286R.

10. The modified FVII polypeptide of any of claims 1-9, comprising a sequence of amino acids set forth in SEQ ID NO: 118, 131-137, 142-153, 279, 281, 285, 290, 292, 296, 299, 301, 305, 308, 310, 314, 316, 323, 334-336, 341 or 342.

11. A modified FVII polypeptide, comprising a modification in a FVII polypeptide, wherein the modification is at a position corresponding to a position selected from among 54, 66, 121, 122, 129 and 132 in a FVII polypeptide having a sequence of amino acids set forth in SEQ ID NO:3 or in corresponding residues in a FVII polypeptide.

12. The modified FVII polypeptide of claim 11, wherein the modification is selected from among P54S, Q66N, L121S, A122N, P129A and E132S.

13. The modified FVII polypeptide of any of claims 1-12, comprising a heterologous Gla domain, or a sufficient portion thereof to effect phospholipid binding.

14. The modified FVII polypeptide of claim 13, wherein the heterologous Gla domain is selected from among a Gla domain in Factor IX (FIX), Factor X (FX), prothrombin, protein C, protein S, osteocalcin, matrix Gla protein, Growth-arrest-specific protein 6 (Gas6) and protein Z.

15. The modified FVII polypeptide of any of claims 1-14 that comprises post-translational modifications.

16. The modified FVII polypeptide claim 15, wherein the post-translational modifications comprise glycosylation.

17 The modified FVII polypeptide any of claims 1-16 that is a two chain activated FVIIa polypeptide.

18. The modified FVII polypeptide of any of claims 1-16 that is a mature polypeptide.

19. The modified FVII polypeptide of any of claims 1-16 that is a single-chain polypeptide or a two-chain polypeptide.

20. The modified FVII polypeptide of any of claims 1-16 that has only three amino acid replacements in addition to the replacement Q286R compared to the FVII polypeptide of one of SEQ ID NOs:1-3.

21. The modified FVII polypeptide of any of claims 1-16 that has only three amino acid replacements in addition to the replacement Q286R compared to the FVII polypeptide of.

22. The modified FVII polypeptide of any of claims 1-16 that has up to four amino acid replacements in addition to the replacement Q286R compared to the FVII polypeptide of.

23. A nucleic acid molecule, comprising a sequence of nucleotides encoding a modified FVII polypeptide of any of claims 1-22.

24. A vector, comprising the nucleic acid molecule of claim 23.

25. A cell, comprising the vector claim 24.

26. A pharmaceutical composition, comprising a therapeutically effective concentration or amount of a modified FVII polypeptide of any of claims 1-22, or a nucleic acid molecule of claim 23 or a vector of claim 24 or a cell of claim 25, in a pharmaceutically acceptable vehicle.

27. The pharmaceutical composition of claim 26 that is formulated for single-dosage administration.

28. The pharmaceutical composition of claim 26 or claim 27 that is formulated for oral, nasal, pulmonary buccal, transdermal, subcutaneous, intraduodenal, enteral, parenteral, intravenous or intramuscular administration.

29. The pharmaceutical composition of any of claims 26-28 that is lyophilized.

30. A modified FVII polypeptide of any of claims any of claims 1-22, for use in treating a disease or condition that is treated by administration of FVII or a pro-coagulant.

31. The modified FVII polypeptide of claim 30, wherein the disease or condition is treated by administration of a zymogen or active form of FVII.

32. The modified FVII polypeptide of claim 30 or claim 31, wherein the disease or condition to be treated is selected from among blood coagulation disorders, hematologic disorders, hemorrhagic disorders, hemophilias, factor VII deficiency, bleeding disorders, surgical bleeding, or bleeding resulting from trauma.

33. The modified FVII polypeptide of claim 32, wherein the disease or condition is hemophilia is the hemophilia is hemophilia A or hemophilia B or hemophilia C.

CLAIMS:

1. A modified factor VII (FVII) polypeptide, wherein

the FVII polypeptide has only 1, 2, 3, 4, 5, 6 or 7 amino acid replacements, and optionally a replacement of all or part of the Gla domain, compared to an unmodified FVII polypeptide that comprises the sequence of amino acids set forth in any of SEQ ID NOS:1-3 and 18-74;

one amino acid replacement is at a position corresponding to position 286 in a FVII polypeptide having the sequence of amino acids set forth in SEQ ID NO:3; and

the replacement at position 286 is replacement by an arginine (Arg, R) that results in a modified FVII polypeptide that exhibits increased coagulant activity compared to the FVII polypeptide that does not have the modification at position 286.

2. The modified FVII polypeptide of claim 1 that is an activated FVIIa polypeptide.

3. The modified FVII polypeptide of claim 1 or claim 2, wherein the unmodified FVII polypeptide comprises the sequence of amino acids set forth in any of SEQ ID NOS:1-3.

4. The modified FVII polypeptide of claim 1 or claim 2, wherein the unmodified FVII polypeptide comprises the sequence of amino acids set forth in SEQ ID NO:3.

5. The modified FVII polypeptide of claim 1 or claim 2, wherein the unmodified FVII polypeptide consists of the sequence of amino acids set forth in SEQ ID NO:3.

6. The modified FVII polypeptide of any of claims 1-5, comprising the amino acid replacement Q286R, wherein the unmodified polypeptide comprises the sequence of amino acids set forth in any of SEQ ID NOs. 1-3.

7. The modified FVII polypeptide of any of claims 1-6, wherein an amino acid replacement in addition to replacement corresponding to the replacement 286R is at a position corresponding to a position selected from among 51, 52, 54, 60, 66, 68, 109, 119, 122, 124, 130, 132, 158, 161, 175, 196, 197, 199, 202, 216, 222, 237, 239, 257, 287, 290, 292, 294, 296, 305, 314, 318, 321, 337, 341, 366, 373, 374, 394, 395 and 396.

8. The modified FVII polypeptide of any of claims 1-7, comprising an amino acid replacement selected from among D196K, D196R, D196A, D196Y, D196F, D196W, D196L, D196I, K197Y, K197A, K197E, K197D, K197L, K197M, K197I, K197V, K197F, K197W, K199A, K199D, K199E, G237W, G237T, G237I, G237V, T239A, R290A, R290E, R290D, R290N, R290Q, R290K, R290M, R290V, K341E, K341R, K341Q, K341N, K341M, K341D, T239S, T239N, T239Q, T239V, T239L, T239H, T239I, L287T, P321K, P321E, P321Y, P321S, Q366D, Q366E, Q366N, Q366T, Q366S, Q366V, Q366I, Q366L, Q366M, H373D, H373E, H373S, H373L, H373I, H373F, H373A, K161S, K161A, K161V, H216S, H216A, H216K, H216R, S222A, S222K, S222V, S222N, S222E, S222D, H257A, H257S, S52A, S60A, E394N, P395A, R396S, R202S, A292N, A294S, G318N, A175S, K109N, A122N, G124S, A51N, T130N, E132S, S52N, P54S, S119N, L121S, T128N, P129A, Q66N, Y68S, V158T, V158D, L287T and E296V.

9. The modified FVII polypeptide of any of claims 1-6, comprising amino acid replacements selected from among Q286R, Q286R/H257A, Q286R/S222A, Q286R/S222A/H257A, Q286R/S222A/Gla Swap FIX, Q286R/H257A/Gla Swap FIX, Q286R/S222A/H257A/Gla Swap FIX, Q286R/Q366V, Q286R/A292N/A294S/Q366V,

A175S/Q286R/Q366V, S222A/Q286R/Q366V, H257S/Q286R, H257S/Q286R/Q366V, S222A/H257A/Q286R/Q366V, Q286R/H373A, Q286R/K341D, Q286R/Q366D, Q286R/Q366N, Q286R/H373F, T128N/P129A/Q286R, T128N/P129A/Q286R/H373F, S52A/S60A/Q286R, S52A/S60A/Q286R/H373F, T239V/Q286R, T239V/Q286R/H373F, T239I/Q286R/H373F, T128N/P129A/A175S/Q286R and A122N/G124S/A175S/Q286R.

10. The modified FVII polypeptide of any of claims 1-9, comprising a sequence of amino acids set forth in SEQ ID NO: 118, 131-137, 142-149, 151-153, 279, 281, 285, 290, 292, 296, 299, 301, 305, 308, 310, 314, 316, 323 or 334-336.

11. The modified FVII polypeptide of any of claims 1-10, comprising a heterologous Gla domain, or a sufficient portion thereof to effect phospholipid binding.

12. The modified FVII polypeptide of claim 11, wherein the heterologous Gla domain is selected from among a Gla domain in Factor IX (FIX), Factor X (FX), prothrombin, protein C, protein S, osteocalcin, matrix Gla protein, Growth-arrest-specific protein 6 (Gas6) and protein Z.

13. The modified FVII polypeptide of any of claims 1-12, comprising a chemical modification or a post-translational modification.

14. The modified FVII polypeptide claim 13, wherein the FVII polypeptide is glycosylated, carboxylated, hydroxylated, sulfated, phosphorylated, albuminated, or conjugated to a polyethylene glycol (PEG) moiety.

15 The modified FVII polypeptide any of claims 1-14 that is a two chain FVIIa polypeptide.

16. The modified FVII polypeptide of any of claims 1-14 that is a mature polypeptide.

17. The modified FVII polypeptide of any of claims 1-14 that is a single-chain polypeptide.

18. The modified FVII polypeptide of any of claims 1-14 that is a FVIIa polypeptide that has been activated by proteolytic cleavage between residues R152 and I153 of SEQ ID NO:3, resulting is a two-chain protease linked by a single disulfide bond (FVIIa).

19. The modified FVII polypeptide of any of claims 1-14 that has only three amino acid replacements in addition to the replacement Q286R compared to the FVII polypeptide of one of SEQ ID NOs:1-3.

20. The modified FVII polypeptide of any of claims 1-14 that has up to four amino acid replacements in addition to the replacement Q286R compared to the FVII polypeptide of one of SEQ ID NOs:1-3.

21. A nucleic acid molecule, comprising a sequence of nucleotides encoding a modified FVII polypeptide of any of claims 1-20.

22. A vector, comprising the nucleic acid molecule of claim 21.

23. A cell, comprising the vector of claim 22.

24. A pharmaceutical composition, comprising a therapeutically effective concentration or amount of a modified FVII polypeptide of any of claims 1-20, or a nucleic acid molecule of claim 21 or a vector of claim 22 or a cell of claim 23, in a pharmaceutically acceptable vehicle.

25. The pharmaceutical composition of claim 24 that is formulated for single-dosage administration.

26. The pharmaceutical composition of claim 24 or claim 25 that is formulated for oral, nasal, pulmonary buccal, transdermal, subcutaneous, intraduodenal, enteral, parenteral, intravenous or intramuscular administration.

27. The pharmaceutical composition of any of claims 24-26 that is lyophilized.

28. The modified FVII polypeptide of any of claims 1-20, for use in treating a disease or condition that is treated by administration of FVII or a pro-coagulant.

29. The modified FVII polypeptide of claim 28, wherein the disease or condition is treated by administration of a zymogen or active form of FVII.

30. The modified FVII polypeptide of claim 28 or claim 29, wherein the disease or condition to be treated is selected from among blood coagulation disorders, hematologic disorders, hemorrhagic disorders, hemophilias, factor VII deficiency, bleeding disorders, surgical bleeding, or bleeding resulting from trauma.

31. The modified FVII polypeptide of claim 30, wherein the disease or condition is hemophilia and the hemophilia is hemophilia A or hemophilia B or hemophilia C.