CLAIMS

1. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is from about 25.0 mS/cm to about 27.0 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is from about 41.0 mS/cm to about 43.0 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the cation exchange chromatography column in step (a).

2. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is from about 19.0 mS/cm about 21.0 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is from about 34.5 mS/cm to about 36.5 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the cation exchange chromatography column in step (a).

3. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm: c)

4. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at least 21 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at most 47 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the cation exchange chromatography column in step (a).

5. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at least about 15.0 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at most 41 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the cation exchange chromatography column in step (a).

6. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at least 21 mS/cm or an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at least 15 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at most 47 mS/cm or the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at most 41 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the cation exchange chromatography column in step (a).

7. The method of Claims 1-6, wherein the eluate collection comprises at least 50% of the protein retained by the cation exchange chromatography column in step (a), or at least 75% of the protein retained by the cation exchange chromatography column in step (a).

8. The method of Claims 1-7, wherein the protein retained by the cation exchange chromatography column is measured by amount or an activity.

9. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a cation exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is from about 25.0 mS/cm to about 27.0 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is from about 41.0 mS/cm to about 43.0 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the cation exchange chromatography column in step (a).

10. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a cation exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is from about 19.0 mS/cm about 21.0 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is from about 34.5 mS/cm to about 36.5 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the cation exchange chromatography column in step (a).

11. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a cation exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is from about 25.0 mS/cm to about 27.0 mS/cm or an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is from about 19.0 mS/cm about 21.0 mS/cm; and d) stopping the eluate

collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is from about 41.0 mS/cm to about 43.0 mS/cm or the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is from about 34.5 mS/cm to about 36.5 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the cation exchange chromatography column in step (a).

12. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a cation exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at least 21 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at most 47 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the cation exchange chromatography column in step (a).

13. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a cation exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at least 15 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at most 41 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the cation exchange chromatography column in step (a).

14. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a cation exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at least 21 mS/cm or an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at least 15 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at most 47 mS/cm or the outlet conductivity value measured for the mobile phase exiting the cation exchange

chromatography column is at most 41 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the cation exchange chromatography column in step (a).

15. The method of Claims 9-14, wherein the eluate collection comprises at least 50% of the Factor VIII retained by the cation exchange chromatography column in step (a), or at least 75% of the Factor VIII retained by the cation exchange chromatography column in step (a).

16. The method of Claims 9-14, wherein the Factor VIII retained by the cation exchange chromatography column is measured by amount or an activity.

17. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to an anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 27.8 mS/cm to about 29.8 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 51.0 mS/cm to about 53.0 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the anion exchange chromatography column in step (a).

18. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to an anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the column is from about 21.0 mS/cm to about 23.0 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the column is from about 45.5 mS/cm to about 47.5 mS/cm; wherein single eluate collection comprises at least 25% of the protein retained by the anion exchange chromatography column in step (a).

19. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to an anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 27.8 mS/cm to about 29.8 mS/cm or an

outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is from about 21.0 mS/cm to about 23.0 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 51.0 mS/cm to about 53.0 mS/cm or the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is from about 45.5 mS/cm to about 47.5 mS/cm; wherein single eluate collection comprises at least 25% of the protein retained by the column in step (a).

20. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to an anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at least 24 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from at most 57 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the anion exchange chromatography column in step (a).

21. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to an anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the column is at least 17 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the column is at most 52 mS/cm; wherein single eluate collection comprises at least 25% of the protein retained by the anion exchange chromatography column in step (a).

22. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to an anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at least 24 mS/cm or an outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is at least 17 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at most 57 mS/cm or the outlet

conductivity value measured for the mobile phase exiting the anion exchange chromatography column is at most 52 mS/cm; wherein single eluate collection comprises at least 25% of the protein retained by the column in step (a).

23. The method of Claims 17-22, wherein the eluate collection comprises at least 50% of the protein retained by the anion exchange chromatography column in step (a), or at least 75% of the protein retained by the anion exchange chromatography column in step (a).

24. The method of Claims 17-22, wherein the protein retained by the anion exchange chromatography column is measured by amount or an activity.

25. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to an anion exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 27.8 mS/cm to about 29.8 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 51.0 mS/cm to about 53.0 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the anion exchange chromatography column in step (a).

26. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to an anion exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the column is from about 21.0 mS/cm to about 23.0 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the column is from about 45.5 mS/cm to about 47.5 mS/cm; wherein single eluate collection comprises at least 25% of the Factor VIII retained by the anion exchange chromatography column in step (a).

27. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to an anion exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile

phase entering the anion exchange chromatography column is from about 27.8 mS/cm to about 29.8 mS/cm or an outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is from about 21.0 mS/cm to about 23.0 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is from about 51.0 mS/cm to about 53.0 mS/cm or the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is from about 45.5 mS/cm to about 47.5 mS/cm; wherein single eluate collection comprises at least 25% of the Factor VIII retained by the column in step (a).

28. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to an anion exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at least 24 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at most 57 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the anion exchange chromatography column in step (a).

29. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to an anion exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an outlet conductivity value measured for the mobile phase exiting the column is at least 17 mS/cm; and d) stopping the eluate collection when the outlet conductivity value measured for the mobile phase exiting the column is at most 52 mS/cm; wherein single eluate collection comprises at least 25% of the Factor VIII retained by the anion exchange chromatography column in step (a).

30. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to an anion exchange chromatography column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at least 24 mS/cm or an outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography

column is at least 17 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at most 57 mS/cm or the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is at most 52 mS/cm; wherein single eluate collection comprises at least 25% of the Factor VIII retained by the column in step (a).

31. The method of Claims 25-30, wherein the eluate collection comprises at least 50% of the Factor VIII retained by the anion exchange chromatography column in step (a), or at least 75% of the Factor VIII retained by the anion exchange chromatography column in step (a).

32. The method of Claims 25-30, wherein the Factor VIII retained by the anion exchange chromatography column is measured by amount or an activity.

33. The method of Claims 1-8 and 17-24, wherein the protein is a recombinant protein.

34. The method of Claims 1-8 and 17-24, wherein the protein from an organism or transgenic organism.

35. The method of Claim 33 or 34, wherein the protein is a blood protein.

36. The method of Claim 35, wherein the blood protein is a blood coagulation protein.

37. The method of Claims 33-36, wherein the blood protein is ADAMTS-13, α1-antiplasmin, α2-antiplasmin, antithrombin, antithrombin III, cancer procoagulant, erythropoietin, Factor II, Factor V, Factor VI, Factor VII, Factor VIII, Factor IX, Factor X, Factor XI, Factor XII, Factor XIII, fibronectin, fibrinogen, heparin cofactor II, high-molecular-weight kininogen, intramuscular immunoglobulin, intravenous immunoglobulin, plasminogen, plasminogen activator inhibitor-1, plasminogen activator inhibitor-2, prekallikrein, protein C, protein S, protein Z, protein Z-related protease inhibitor, tissue factor, tissue plasminogen activator, urokinase, or Von Willebrand Factor.

38. The method of Claims 1-37, wherein the buffered solution comprises 2-(*N*-morpholino) ethanesulfonic acid (MES), N-(2-acetamido)iminodiacetic acid (ADA), dimethylarsinic acid (Cacodylate), piperazine-*N,N'-bis*(2-ethanesulfonic acid) (PIPES), N-(2-Acetamido)-2-aminoethanesulfonic acid (ACES), cholamine chloride, *N,N'-bis*(2-hydroxyethyl)-2-aminoethanesulfonic acid (BES), 3-(*N*-morpholino) propanesulfonic acid (MOPS), 2-{[tris(hydroxymethyl)methyl]amino}ethanesulfonic acid (TES), *N*-(2-hydroxyethyl) piperazine-*N'*-(2-ethanesulfonic acid) (HEPES), piperazine-*N,N'-bis*(2-hydroxypropanesulfonic acid) (POPSO), *N-tris*(hydroxymethyl) methylglycine (Tricine), tris(hydroxymethyl)methylamine (Tris), acetamidoglycine, N,N-bis(2-hydroxyethyl)glycine (Bicine), *N-tris*(hydroxymethyl)methyl-3-aminopropanesulfonic acid (TAPS), 3-[(1,1-dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid (AMPSO), 3-(cyclohexylamino)-2-hydroxy-1-propanesulfonic acid (CAPSO), or 3-(cyclohexylamino)-1-propanesulfonic acid (CAPS).

39. The method of Claims 1-38, wherein the buffered solution comprises an electrolyte.

40. The method of Claim 39, wherein the electrolyte comprises sodium ions, potassium ions, calcium ions, magnesium ions, chloride ions, hydrogen phosphate ions, hydrogen carbonate ions, or any combination thereof.

41. The method of Claims 1-40, wherein the buffered solution comprises a non-ionic surfactant.

42. The method of Claims of 41, wherein the non-ionic surfactant is a polyoxyethylene glycol sorbitan alkyl ester, a poloxamer, a polyoxyethylene glycol alkyl ether, a polyoxypropylene glycol alkyl ether, a glucoside alkyl ether, a dodecoxyethanol, a polyoxyethylene glycol octylphenol ether, a polyoxyethylene glycol alkylphenol ether, a glycerol alkyl ester, a sorbitan alkyl ester, a cocamide ethanolamine, sucrose monolaurate, dodecyl dimethylamine oxide, sodium cholate, or any combination thereof.

43. The method of Claims 1-42, wherein the conductivity gradient is defined by a linear function, a sigmoidal function, a logarithmic function, or an exponential function.

44. The method of Claims 1-43, wherein the method is performed as a closed system.

45. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 90 mS/cm; c) starting an eluate collection when an conductivity value measured for the mobile phase is from about 19.0 mS/cm to about 30.0 mS/cm; and d) stopping the eluate collection when the conductivity value measured for the mobile phase is from about 34.0 mS/cm to about 53.0 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the column in step (a).

46. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 90 mS/cm; c) starting an eluate collection when an conductivity value measured for the mobile phase is at least 16 mS/cm; and d) stopping the eluate collection when the conductivity value measured for the mobile phase is at most 57 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the column in step (a).

47. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 90 mS/cm; c) starting an eluate collection when an conductivity value measured for the mobile phase is from about 19.0 mS/cm to about 30.0 mS/cm; and d) stopping the eluate collection when the conductivity value measured for the mobile phase is from about 34.0 mS/cm to about 53.0 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the column in step (a).

48. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a Factor VIII to a column, wherein the application causes the Factor VIII to be retained by the column; b) applying a mobile phase to the column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 90 mS/cm; c) starting an eluate collection when an conductivity value measured for the mobile phase is at least 15 mS/cm; and d) stopping the eluate collection when the conductivity value measured for the mobile phase is at most 58 mS/cm; wherein the eluate collection comprises at least 25% of the Factor VIII retained by the column in step (a).

49. The method of Claims 45-48, wherein the column is a packed-bed chromatography column or an expanded bed adsorption chromatography column.

50. The method of Claim 49, wherein the packed-bed chromatography column is an ion exchange chromatography column, an affinity chromatography column, a hydrophobic interaction chromatography column, or a fluidized bed chromatography column.

51. The method of Claim 50, wherein the ion exchange chromatography column is a cation exchange chromatography column.

52. The method of Claim 51, wherein in step (b) the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm;

53. The method of Claim 51, wherein in step (c) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection starts when the inlet conductivity value is from about 25.0 mS/cm to about 27.0 mS/cm.

54. The method of Claim 51, wherein in step (d) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection stops when the outlet conductivity value is from about 41.0 mS/cm to about 43.0 mS/cm.

55. The method of Claim 51, wherein in step (c) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection starts when the outlet conductivity value is from about 19.0 mS/cm about 21.0 mS/cm.

56. The method of Claim 51, wherein in step (d) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection stops when the outlet conductivity value is from about 34.5 mS/cm to about 36.5 mS/cm.

57. The method of Claim 51, wherein in step (c) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection starts when the inlet conductivity value is at least 21 mS/cm.

58. The method of Claim 51, wherein in step (d) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection stops when the outlet conductivity value is at most 47 mS/cm.

59. The method of Claim 51, wherein in step (c) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection starts when the outlet conductivity value is at least 15 mS/cm.

60. The method of Claim 51, wherein in step (d) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection stops when the outlet conductivity value is at most 41 mS/cm.

61. The method of Claim 50, wherein the ion exchange chromatography column is an anion exchange chromatography column.

62. The method of Claim 61, wherein in step (b) the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm;

63. The method of Claim 62, wherein in step (c) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection starts when the inlet conductivity value is from about 27.8 mS/cm to about 29.8 mS/cm.

64. The method of Claim 62, wherein in step (d) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection stops when the outlet conductivity value is from about 51.0 mS/cm to about 53.0 mS/cm.

65. The method of Claim 62, wherein in step (c) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection starts when the outlet conductivity value is from about 21.0 mS/cm to about 23.0 mS/cm.

66. The method of Claim 62, wherein in step (d) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection stops when the outlet conductivity value is from about 45.5 mS/cm to about 47.5 mS/cm.

67. The method of Claim 62, wherein in step (c) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection starts when the inlet conductivity value is at least 24 mS/cm.

68. The method of Claim 62, wherein in step (d) the conductivity value measured is an inlet conductivity value measured for the mobile phase entering the column and eluate collection stops when the outlet conductivity value is at most 57 mS/cm.

69. The method of Claim 62, wherein in step (c) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection starts when the outlet conductivity value is at least 17 mS/cm.

70. The method of Claim 62, wherein in step (d) the conductivity value measured is an outlet conductivity value measured for the mobile phase exiting the column and eluate collection stops when the outlet conductivity value is at most 52 mS/cm.

71. The method of Claims 45-70, wherein the protein is a recombinant protein.

72. The method of Claims 45-70, wherein the protein from an organism or transgenic organism.

73. The method of Claim 71 or 72, wherein the protein is a blood protein.

74. The method of Claim 73, wherein the blood protein is a blood coagulation protein.

75. The method of Claims 49-51, wherein the blood protein is ADAMTS-13, α1-antiplasmin, α2-antiplasmin, antithrombin, antithrombin III, cancer procoagulant, erythropoietin, Factor II, Factor V, Factor VI, Factor VII, Factor VIII, Factor IX, Factor X, Factor XI, Factor XII, Factor XIII, fibronectin, fibrinogen, heparin cofactor II, high-molecular-weight kininogen, intramuscular immunoglobulin, intravenous immunoglobulin, plasminogen, plasminogen activator inhibitor-1, plasminogen activator inhibitor-2, prekallikrein, protein C, protein S, protein Z, protein Z-related protease inhibitor, tissue factor, tissue plasminogen activator, urokinase, or Von Willebrand Factor.

76. The method of Claims 45-75, wherein the buffered solution comprises 2-(*N*-morpholino) ethanesulfonic acid (MES), N-(2-acetamido)iminodiacetic acid (ADA), dimethylarsinic acid (Cacodylate), piperazine-*N,N'-bis*(2-ethanesulfonic acid) (PIPES), N-(2-Acetamido)-2-aminoethanesulfonic acid (ACES), cholamine chloride, *N,N'-bis*(2-hydroxyethyl)-2-aminoethanesulfonic acid (BES), 3-(*N*-morpholino) propanesulfonic acid (MOPS), 2-{[tris(hydroxymethyl)methyl]amino}ethanesulfonic acid (TES), *N*-(2-hydroxyethyl) piperazine-*N'*-(2-ethanesulfonic acid) (HEPES), piperazine-*N,N'-bis*(2-hydroxypropanesulfonic acid) (POPSO), *N-tris*(hydroxymethyl) methylglycine (Tricine), tris(hydroxymethyl)methylamine (Tris), acetamidoglycine, N,N-bis(2-hydroxyethyl)glycine (Bicine), *N-tris*(hydroxymethyl)methyl-3-aminopropanesulfonic acid (TAPS), 3-[(1,1-dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid (AMPSO), 3-(cyclohexylamino)-2-hydroxy-1-propanesulfonic acid (CAPSO), or 3-(cyclohexylamino)-1-propanesulfonic acid (CAPS).

77. The method of Claims 45-76, wherein the buffered solution comprises an electrolyte.

78. The method of Claim 77, wherein the electrolyte comprises sodium ions, potassium ions, calcium ions, magnesium ions, chloride ions, hydrogen phosphate ions, hydrogen carbonate ions, or any combination thereof.

79. The method of Claims 45-78, wherein the buffered solution comprises a surfactant.

80. The method of Claim 79, wherein the surfactant is an ionic surfactant, a zwitterionic (amphoteric) surfactant, or a non-ionic surfactant.

81. The method of Claim 80, wherein the ionic surfactant is an anion surfactant or cationic surfactant.

82. The method of Claim 81, wherein the anionic surfactant is an alkyl sulfate, an alkyl ether sulfate, a docusate, a sulfonate fluorosurfactant, an alkyl benzene sulfonate, an alkyl aryl ether phosphate, an alkyl ether phosphate, an; alkyl carboxylate, a sodium lauroyl sarcosinate, or a carboxylate fluorosurfactant.

83. The method of Claim 82, wherein the alkyl sulfate is ammonium lauryl sulfate or sodium lauryl sulfate (SDS).

84. The method of Claim 82, wherein the alkyl ether sulfate is sodium laureth sulfate or sodium myreth sulfate.

85. The method of Claim 82, wherein the docusate is dioctyl sodium sulfosuccinate.

86. The method of Claim 82, wherein the sulfonate fluorosurfactant is perfluorooctanesulfonate (PFOS) or perfluorobutanesulfonate.

87. The method of Claim 82, wherein the alkyl carboxylate is a fatty acid salt or sodium stearate.

88. The method of Claim 82, wherein the carboxylate fluorosurfactant is perfluorononanoate and perfluorooctanoate.

89. The method of Claim 81, wherein the cationic surfactant is an alkyltrimethylammonium salt, cetylpyridinium chloride (CPC), polyethoxylated tallow amine (POEA), benzalkonium chloride (BAC), benzethonium chloride (BZT), 5-bromo-5-nitro-1,3-dioxane, dimethyldioctadecylammonium chloride, dioctadecyldimethylammonium bromide (DODAB), a pH-dependent primary amine, a pH-dependent secondary amine, or a pH-dependent tertiary amine.

90. The method of Claim 89, wherein the alkyltrimethylammonium salt is cetyl trimethylammonium bromide (CTAB) or cetyl trimethylammonium chloride (CTAC).

91. The method of Claim 89, wherein the primary amine becomes positively charged at pH < 10 or the secondary amine becomes charged at pH < 4.

92. The method of Claim 81, wherein the cationic surfactant is octenidine dihydrochloride.

93. The method of Claim 81, wherein the zwitterionic surfactant is 3-[(3-cholamidopropyl) dimethylammonio]-1-propanesulfonate (CHAPS), a sultaine, a, betaine, or a lecithin.

94. The method of Claim 93, wherein the sultaine is cocamidopropyl hydroxysultaine.

95. The method of Claim 93, wherein the betaine is cocamidopropyl betaine.

96. The method of Claim 81, wherein the non-ionic surfactant is a polyoxyethylene glycol sorbitan alkyl ester, a poloxamer, an alkyl phenol polyglycol ether, a polyethylene glycol alkyl aryl ether, a polyoxyethylene glycol alkyl ether, 2-dodecoxyethanol (LUBROL®-PX), a polyoxyethylene glycol octylphenol ether, a polyoxyethylene glycol alkylphenol ether, a phenoxypolyethoxylethanol, a glucoside alkyl ether, a maltoside alkyl ether, a thioglucoside alkyl ether, a digitonin, a glycerol alkyl ester, an alkyl aryl polyether sulfate, an alcohol sulfonate, a sorbitan alkyl ester, a cocamide ethanolamine, sucrose monolaurate, dodecyl dimethylamine oxide, or sodium cholate.

97. The method of Claim 96, wherein the polyoxyethylene glycol sorbitan alkyl ester is polysorbate 20 sorbitan monooleate (TWEEN® 20), polysorbate 40 sorbitan monooleate (TWEEN® 40), polysorbate 60 sorbitan monooleate (TWEEN® 60), polysorbate 61 sorbitan monooleate (TWEEN® 61),

polysorbate 65 sorbitan monooleate (TWEEN® 65), polysorbate 80 sorbitan monooleate (TWEEN® 80), or polysorbate 81 sorbitan monooleate (TWEEN® 81).

98. The method of Claim 96, wherein the poloxamer is Poloxamer 124 (PLURONIC® L44), Poloxamer 181 (PLURONIC® L61), Poloxamer 182 (PLURONIC® L62), Poloxamer 184 (PLURONIC® L64), Poloxamer 188 (PLURONIC® F68), Poloxamer 237 (PLURONIC® F87), Poloxamer 338 (PLURONIC® L108), or Poloxamer 407 (PLURONIC® F127).

99. The method of Claim 96, wherein the polyoxyethylene glycol alkyl ether is octaethylene glycol monododecyl ether, pentaethylene glycol monododecyl ether, BRIJ® 30, or BRIJ® 35.

100. The method of Claim 96, wherein the polyoxyethylene glycol octylphenol ether is polyoxyethylene (4-5) p-t-octyl phenol (TRITON® X-45) or polyoxyethylene octyl phenyl ether (TRITON® X-100).

101. The method of Claim 96, wherein the polyoxyethylene glycol alkylphenol ether is nonoxynol-9.

102. The method of Claim 96, wherein the phenoxypolyethoxylethanol is nonyl phenoxypolyethoxylethanol or octyl phenoxypolyethoxylethanol.

103. The method of Claim 96, wherein the glucoside alkyl ether is octyl glucopyranoside.

104. The method of Claim 96, wherein the maltoside alkyl ether is dodecyl maltopyranoside.

105. The method of Claim 96, wherein the thioglucoside alkyl ether is heptyl thioglucopyranoside.

106. The method of Claim 96, wherein the glycerol alkyl ester is glyceryl laurate.

107. The method of Claim 96, wherein the cocamide ethanolamine is cocamide monoethanolamine or cocamide diethanolamine.

108. The method of Claims 45-107, wherein the conductivity gradient is defined by a linear function, a sigmoidal function, a logarithmic function, or an exponential function.

109. The method of Claims 45-108, wherein the method is performed as a closed system.

110. The method of Claim 45, 46, or 49-109, wherein the eluate collection comprises at least 50% of the protein retained by the column in step (a), or at least 75% of the protein retained by the column in step (a).

111. The method of Claim 110, wherein the protein retained by the column is measured by amount or an activity.

112. The method of Claims 47-109, wherein the eluate collection comprises at least 50% of the Factor VIII retained by the column in step (a), or at least 75% of the Factor VIII retained by the column in step (a).

113. The method of Claim 112, wherein the Factor VIII retained by the cation exchange chromatography column is measured by amount or an activity.

114. The method of Claims 45-113, wherein the eluate collection is collected as a single elution.

115. The method of Claims 45-113, wherein the eluate collection is collected as a plurality of elutions.

116. The method of Claims 1-115 substantially as described herein.

117. A method of collecting an elution from a column substantially as described herein.

CLAIMS

1. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a cation exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the cation exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 8 mS/cm to about 90 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at least about 21 mS/cm or an outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at least about 15 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is at most about 47 mS/cm or the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is at most about 41 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the cation exchange chromatography column in step (a).

2. The method of claim 1 wherein in step c) starting of the eluate collection begins when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is between about 25.0 mS/cm and about 27.0 mS/cm and in step d) stopping of the eluate collection occurs when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is between about 41.0 mS/cm and about 43.0 mS/cm.

3. The method of claim 1 wherein in step c) starting of the eluate collection begins when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is between about 19.0 mS/cm and about 21.0 mS/cm and in step d) stopping of the eluate collection occurs when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is between about 34.5 mS/cm and about 36.5 mS/cm.

4. The method of claim 1 wherein in step c) starting of the eluate collection begins when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is between about 25.0 mS/cm and about 27.0 mS/cm and in step d) stopping of the eluate collection occurs when the inlet conductivity value measured for the mobile phase entering the cation exchange chromatography column is between about 41.0 mS/cm and about 43.0 mS/cm or wherein in step c) starting of the eluate collection begins when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is between about 19.0 mS/cm and about 21.0 mS/cm and in step d) stopping of the eluate collection occurs when the outlet conductivity value measured for the mobile phase exiting the cation exchange chromatography column is between about 34.5 mS/cm and about 36.5 mS/cm.

5. The method of claim 1, wherein the eluate collection comprises at least 50% of the protein retained by the cation exchange chromatography column in step (a), or at least 75% of the protein retained by the cation exchange chromatography column in step (a).

6. The method of claim 1, wherein the protein is a recombinant Factor VIII protein.

7. The method of claim 1, wherein the protein is ADAMTS-13, α1-antiplasmin, α2-antiplasmin, antithrombin, antithrombin III, cancer procoagulant, erythropoietin, Factor II, Factor V, Factor VI, Factor VII, Factor VIII, Factor IX, Factor X, Factor XI, Factor XII, Factor XIII, fibronectin, fibrinogen, heparin cofactor II, high-molecular-weight kininogen, intramuscular immunoglobulin, intravenous immunoglobulin, plasminogen, plasminogen activator inhibitor-1, plasminogen activator inhibitor-2, prekallikrein, protein C, protein S, protein Z, protein Z-related protease inhibitor, tissue factor, tissue plasminogen activator, urokinase, or Von Willebrand Factor.

8. The method of claim 1, wherein the buffered solution comprises 2-(*N*-morpholino) ethanesulfonic acid (MES), N-(2-acetamido)iminodiacetic acid (ADA), dimethylarsinic acid (Cacodylate), piperazine-*N,N'-bis*(2-ethanesulfonic acid) (PIPES), N-(2-Acetamido)-2-aminoethanesulfonic acid (ACES), cholamine chloride, *N,N'-bis*(2-hydroxyethyl)-2-aminoethanesulfonic acid (BES), 3-(*N*-morpholino) propanesulfonic acid (MOPS), 2-{[tris(hydroxymethyl)methyl]amino}ethanesulfonic acid (TES), *N*-(2-hydroxyethyl) piperazine-*N'*-(2-ethanesulfonic acid) (HEPES), piperazine-*N,N'-bis*(2-hydroxypropanesulfonic acid) (POPSO), *N-tris*(hydroxymethyl) methylglycine (Tricine), tris(hydroxymethyl)methylamine (Tris), acetamidoglycine, N,N-bis(2-hydroxyethyl)glycine (Bicine), *N-tris*(hydroxymethyl)methyl-3-aminopropanesulfonic acid (TAPS), 3-[(1,1-dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid (AMPSO), 3-(cyclohexylamino)-2-hydroxy-1-propanesulfonic acid (CAPSO), or 3-(cyclohexylamino)-1-propanesulfonic acid (CAPS).

9. The method of claim 1, wherein the buffered solution comprises a non-ionic surfactant selected from a polyoxyethylene glycol sorbitan alkyl ester, a poloxamer, a polyoxyethylene glycol alkyl ether, a polyoxypropylene glycol alkyl ether, a glucoside alkyl ether, a dodecoxyethanol, a polyoxyethylene glycol octylphenol ether, a polyoxyethylene glycol alkylphenol ether, a glycerol alkyl ester, a sorbitan alkyl ester, a cocamide ethanolamine, sucrose monolaurate, dodecyl dimethylamine oxide, sodium cholate, or any combination thereof.

10. The method of claim 1, wherein the method is performed as a closed system.

11. A method of collecting an elution from a column, the method comprising the steps of: a) applying a sample comprising a protein to a anion exchange chromatography column, wherein the application causes the protein to be retained by the column; b) applying a mobile phase to the anion exchange chromatography column, the mobile phase comprising a buffered solution, wherein application of the mobile phase establishes a conductivity gradient of from about 4 mS/cm to about 80 mS/cm; c) starting an eluate collection when an inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at least about 24 mS/cm or an outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is at least about 17 mS/cm; and d) stopping the eluate collection when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is at most about 57 mS/cm or the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is at most about 52 mS/cm; wherein the eluate collection comprises at least 25% of the protein retained by the anion exchange chromatography column in step (a).

12. The method of claim 11 wherein in step c) starting of the eluate collection begins when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is between about 27.8 mS/cm and about 29.8 mS/cm and in step d) stopping of the eluate collection occurs when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is between about 51.0 mS/cm and about 53.0 mS/cm.

13. The method of claim 11 wherein in step c) starting of the eluate collection begins when the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is between about 21.0 mS/cm and about 23.0 mS/cm and in step d) stopping of the eluate collection occurs when the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is between about 45.5 mS/cm and about 47.5 mS/cm.

14. The method of claim 11 wherein in step c) starting of the eluate collection begins when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is between about 27.8 mS/cm and about 29.8 mS/cm and in step d) stopping of the eluate collection occurs when the inlet conductivity value measured for the mobile phase entering the anion exchange chromatography column is between about 51.0 mS/cm and about 53.0 mS/cm or wherein in step c) starting of the eluate collection begins when the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is between about 21.0 mS/cm and about 23.0 mS/cm and in step d) stopping of the eluate collection occurs when the outlet conductivity value measured for the mobile phase exiting the anion exchange chromatography column is between about 45.5 mS/cm and about 47.5 mS/cm.

15. The method of claim 11, wherein the eluate collection comprises at least 50% of the protein retained by the anion exchange chromatography column in step (a), or at least 75% of the protein retained by the anion exchange chromatography column in step (a).

16. The method of claim 11, wherein the protein is a recombinant Factor VIII protein.

17. The method of claim 11, wherein the protein is ADAMTS-13, α1-antiplasmin, α2-antiplasmin, antithrombin, antithrombin III, cancer procoagulant, erythropoietin, Factor II, Factor V, Factor VI, Factor VII, Factor VIII, Factor IX, Factor X, Factor XI, Factor XII, Factor XIII, fibronectin, fibrinogen, heparin cofactor II, high-molecular-weight kininogen, intramuscular immunoglobulin, intravenous immunoglobulin, plasminogen, plasminogen activator inhibitor-1, plasminogen activator inhibitor-2, prekallikrein, protein C, protein S, protein Z, protein Z-related protease inhibitor, tissue factor, tissue plasminogen activator, urokinase, or Von Willebrand Factor.

18. The method of claim 11, wherein the buffered solution comprises 2-(*N*-morpholino) ethanesulfonic acid (MES), N-(2-acetamido)iminodiacetic acid (ADA), dimethylarsinic acid (Cacodylate), piperazine-*N,N'-bis*(2-ethanesulfonic acid) (PIPES), N-(2-Acetamido)-2-aminoethanesulfonic acid (ACES), cholamine chloride, *N,N'-bis*(2-hydroxyethyl)-2-aminoethanesulfonic acid (BES), 3-(*N*-morpholino) propanesulfonic acid (MOPS), 2-{[tris(hydroxymethyl)methyl]amino}ethanesulfonic acid (TES), *N*-(2-hydroxyethyl) piperazine-*N'*-(2-ethanesulfonic acid) (HEPES), piperazine-*N,N'-bis*(2-hydroxypropanesulfonic acid) (POPSO), *N-tris*(hydroxymethyl) methylglycine (Tricine), tris(hydroxymethyl)methylamine (Tris), acetamidoglycine, N,N-bis(2-hydroxyethyl)glycine (Bicine), *N-tris*(hydroxymethyl)methyl-3-aminopropanesulfonic acid (TAPS), 3-[(1,1-dimethyl-2-hydroxyethyl)amino]-2-hydroxypropanesulfonic acid (AMPSO), 3-(cyclohexylamino)-2-hydroxy-1-propanesulfonic acid (CAPSO), or 3-(cyclohexylamino)-1-propanesulfonic acid (CAPS).

19. The method of claim 11, wherein the buffered solution comprises a non-ionic surfactant selected from a polyoxyethylene glycol sorbitan alkyl ester, a poloxamer, a polyoxyethylene glycol alkyl ether, a polyoxypropylene glycol alkyl ether, a glucoside alkyl ether, a dodecoxyethanol, a polyoxyethylene glycol octylphenol ether, a polyoxyethylene glycol alkylphenol ether, a glycerol alkyl ester, a sorbitan alkyl ester, a cocamide ethanolamine, sucrose monolaurate, dodecyl dimethylamine oxide, sodium cholate, or any combination thereof.

20. The method of claim 11, wherein the method is performed as a closed system.