What is Claimed is:

1. A continuous method for producing a recombinant protein, the method comprising:

(a) capturing the recombinant protein from a substantially cell-free sample using one or a plurality of capture chromatography systems and eluting the recombinant protein from the one or plurality of capture chromatography systems to produce eluates comprising the recombinant protein, wherein the eluates are homogenized into a single mixture comprising the recombinant protein;

(b) subjecting the homogenized single mixture to one or a plurality of post-capture chromatography systems and collecting product output comprising the recombinant protein; and

(c) subjecting the product output to ultrafiltration and diafiltration to purify the recombinant protein;

wherein each step is performed by a unit operation, each unit operation is physically connected from step (a) to step (c), and the connected unit operations from step (a) to step (c) process a continuous flow comprising the recombinant protein from step (a) to step (c); and

wherein the ultrafiltration is performed with single pass tangential flow filtration and the diafiltration is performed using a single-pass diafiltration cassette.

2. The method of claim 1 further comprising subjecting the homogenized single mixture to virus inactivation following step (a).

3. The method of claim 2, wherein virus inactivation comprises solvent-detergent solution inactivation, heat inactivation, or acidic pH inactivation.

4. The method of claim 3, wherein the acidic pH inactivation comprises:

(a) adjusting the homogenized single mixture to a low pH in-line by adding one or more solutions; and

(b) incubating the adjusted homogenized single mixture at the low pH for a period of time that results in a virus inactivation mixture.

5. The method of claim 4, wherein the period of time is between 15 minutes to 2 hours.

6. The method of claim 1 further comprising subjecting the product output of step (b) to virus filtration.

7. The method of claim 1, wherein the substantially cell-free sample is removed from a perfusion bioreactor comprising host cells that produce the recombinant protein, a fedbatch bioreactor comprising host cells that produce the recombinant protein, or a clarified liquid culture comprising host cells that produce the recombinant protein.

8. The method of claim 1, wherein the one or plurality of capture chromatography systems and the one or a plurality of post-capture chromatography systems comprises chromatography media comprising resin beads, porous membranes, or nanofibers.

9. The method of claim 8, wherein the chromatography media is functionalized for affinity chromatography, cation exchange chromatography, anion exchange chromatography, hydrophobic interaction chromatography, or mixed-mode chromatography.

10. The method of claim 9, wherein the affinity chromatography media is a Protein A-based resin.

11. The method of claim 1, wherein the one or plurality of capture chromatography systems and the one or a plurality of post-capture chromatography systems is a periodic counter current chromatography system (PCCS).

12. The method of claim 4, wherein incubating the adjusted homogenized single mixture at the low pH for a period of time that results in virus inactivation is performed in a tubular flow reactor.

13. The method of claim 4, wherein the addition of the one or more solutions is based on in-line recombinant protein concentration measurements and in-line flow-rate measurements.

14. The method of claim 6, wherein the virus filtration is performed in a pressurized loop.

15. The method of claim 14, wherein the pressurized loop comprises a pressure vessel, a virus removal filter, and a sterilizing filter.

16. The method of claim 15, wherein the pressure vessel is a single-use, closed, and sterilizable vessel.

17. The method of claim 16, wherein the virus removal filter is an ultrafilter or a nanofilter.

18. The method of claim 6, wherein the virus filtration is performed using dead-end filtration.

19. The method of claim 18, wherein the dead-end filtration is performed using an ultrafilter or a nanofilter.

20. The method of claim 1, wherein the ultrafiltration is performed with single pass tangential flow filtration.

21. The method of claim 1, wherein the diafiltration is performed using a single-pass diafiltration cassette.

22. The method of claim 1, wherein the recombinant protein is an antibody or antigen binding fragment thereof.

23. The method of claim 1 further comprising adding one or more excipients following step (c) to generate a therapeutic drug substance.

24. A manufacturing system for producing a recombinant protein, the manufacturing system comprising:

(a) a first unit operation comprising a bioreactor comprising host cells that produce the recombinant protein;

(b) a second unit operation comprising one or a plurality of capture chromatography systems;

(c) a third unit operation comprising one or a plurality of post-capture chromatography systems; and

(d) a fourth unit operation comprising an ultrafiltration system and diafiltration system,

wherein each unit operation from (a) to (d) is physically connected and the connected unit operations process a continuous flow comprising the recombinant protein, and

wherein the ultrafiltration system comprises a single pass tangential flow filtration and the diafiltration system comprises a single-pass diafiltration cassette.

25. The system of claim 24 further comprising a fifth unit operation located between the first unit operation and the second unit operation, wherein the fifth unit operation comprises a subsystem for preforming virus inactivation.

26. The system of claim 25, wherein the subsystem is a tubular flow reactor.

27. The system of claim 24 further comprising a sixth unit operation located between the third unit operation and the fourth unit operation, wherein the sixth unit operation comprises a second subsystem for preforming virus filtration.

28. The system of claim 24, wherein the one or plurality of capture chromatography systems and the one or a plurality of post-capture chromatography systems comprises chromatography media comprising resin beads, porous membranes, or nanofibers.

29. The system of claim 28, wherein the chromatography media is functionalized for affinity chromatography, cation exchange chromatography, anion exchange chromatography, hydrophobic interaction chromatography, or mixed-mode chromatography.

30. The system of claim 29, wherein the affinity chromatography media is a Protein A-based resin.

31. The system of claim 24, wherein the one or plurality of capture chromatography columns and the one or a plurality of post-capture chromatography systems is a periodic counter current chromatography system (PCCS).

32. The system of claim 26, wherein the tubular flow reactor has a defined minimum residence time of at least 30 minutes.

33. The system of claim 27, wherein the second subsystem for performing virus filtration is a pressurized container comprising a virus removal filter and a sterilizing filter.

34. The system of claim 33, wherein the pressurized container is a single-use, closed, and steriziable container.

35. The system of claim 33, wherein the virus removal filter is an ultrafilter or a nanofilter.

36. The system of claim 24, wherein the first unit operation comprises an outlet that is connected to an inlet on the second unit operation, wherein the second unit operation comprises an outlet that is connected to an inlet on the third unit operation, wherein the third unit operation comprises an outlet that is connected to an inlet on the fourth unit operation.

37. The system of claim 24 further comprising a surge vessel between each of the first unit operation, the second unit operation, the third unit operation, and the fourth unit operation.

38. The system of claim 24, wherein the recombinant protein is an antibody or antigen binding fragment thereof.

39. The system of claim 24, wherein the system is on a skid.

40. The system of claim 24, wherein the system is closed.

41. The system of claim 24 further comprising a seventh unit operation comprising a third subsystem, wherein the third subsystem comprises in-line excipients for formulating a therapeutic drug substance.