## CLAIMS

1. A tangential flow filtration (TFF) system comprising a single use disposable reactor vessel (1), a first fluid pathway comprising low-pressure single use disposable tubing, a feed pump (2), a single use disposable TFF flow path comprising a TFF filtration unit (3), a second fluid pathway comprising high-pressure disposable tubing (7,10), and a recirculation pump (4), wherein:

the single use disposable reactor vessel (1) comprises a feed material and/or buffer, and is connected through single use disposable low-pressure tubing to the feed pump;

the feed pump (2) is connected to single use disposable high-pressure tubing that supplies the feed material and/or buffer to the TFF filtration unit (3);

the TFF filtration unit (3) comprises a single use disposable cassette manifold (3b) comprising a manifold supply inlet, cassette filters (3a), a manifold supply inlet (17), a manifold outlet (19), and a permeate outlet (20);

the recirculation pump (4) is connected to a recirculation loop comprising a supply side (7) and a return side (10) that are each comprised of disposable high-pressure tubing;

the manifold outlet (19) is connected through single use disposable high-pressure tubing to the supply side (7) of the recirculation loop;

the return side (10) of the recirculation loop is connected to the TFF filtration unit (30 and a feed and/or retentate return outlet (15) for return to the single use disposable reactor vessel (1);

the single use disposable reactor vessel (1) is not directly connected to the single use high-pressure disposable tubing;

the single use disposable reactor vessel (1), single use disposable low-pressure tubing, single use disposable high-pressure tubing, and single use disposable cassette manifold (3b) are comprised of plastic, thermoplastic elastomer, rubber, high-density polyethylene, a combination of low-density and high-density polyethylene, or nylon; and,

the single use disposable high-pressure tubing has a Shore durometer of at least 40D or is braided reinforced silicon.

2. The TFF system of claim 1, wherein the single use disposable cassette manifold can stably process feed material at a pressure of up to 60 pounds per square inch(gauge) (psig) (~4.1 Bar).

3. The TFF system of claim 1 or claim 2, wherein the single use disposable high-pressure tubing has a Shore durometer of 60D.

4. The TFF system of any preceding claim wherein the single use disposable cassette manifold is fluidly connected to one or more TFF filtration cassette(s) that can provide a surface area of greater than 5 $m^2$ , optionally in excess of 40 $m^2$ , for filtration of feed material.

5. The TFF system of any preceding claims comprising multiple TFF cassettes fluidly connected in series.

6. The TFF system of any preceding claim wherein the single use disposable reactor vessel is a cone-bottom or tulip-bottom vessel.

7. The TFF system of any preceding claim further comprising at least one valve for controlling flow into and/or from one or more of the single use disposable reactor vessel and the TFF filtration unit , said at least one valve being fluidly connected to at least one of the feed pump or the recirculation pump.

8. The TFF system of claim 7, wherein the at least one valve and at least one pump are controlled by a computer.

9. The TFF system of claim 1, wherein the single use disposable reactor vessel is a disposable container within a disposable container holder.

10. A single use disposable cassette manifold comprising at least one feed material inlet conduit, at least one permeate discharge conduit, and at least one retentate outlet conduit; can stably process feed material at a pressure of up to 60 pounds per square inch (gauge) (psig) (~4.1 Bar); and, is comprised of plastic, optionally wherein the plastic comprises or consists of nylon or high-density polythylene (HDPE).

11. The single use disposable cassette manifold of claim 10 fluidly connected to at least one tangential flow filtration (TFF) membrane.

12. A method for purifying and/or concentrating a product present within a feed material, the method comprising passing the feed material through the disposable cassette manifold and TFF cassette(s) using a system of any one of claims 1-8 and/or a single use disposable cassette manifold of claim 10 or 11.

13. The method of claim 12 further comprising passing the feed material through the single use disposable cassette manifold and TFF cassette(s)to produce a retentate and isolating the

retentate, and/or recirculating the retentate through the TFF cassettes to produce a purified and/or concentrated product.

14. The method of claim 12 or 13 wherein the feed material is passed through the single use disposable cassette manifold and TFF cassette(s) at a pressure of up to 60 pounds per square inch (gauge) (psig) (~4.1 Bar).

15. The method of any one of claims 12-14 wherein the single use disposable cassette manifold is comprised of plastic, optionally wherein the plastic comprises or consists of nylon or high-density polythylene (HDPE).

16. A method for preparing a TFF system of any one of claims 1-9, the method comprising fluidly connecting a single use disposable reactor vessel to the disposable low-pressure tubing and the feed pump; fluidly connecting the recirculation pump to a section of single use disposable high-pressure tubing that supplies feed material to the single use disposable cassette manifold; fluidly connecting the recirculation pump to a section of disposable high-pressure tubing that returns retentate material from the single use disposable cassette manifold to the recirculation pump, wherein the method does not comprise directly fluidly connecting the single use disposable reactor vessel to the high-pressure disposable tubing.