CLAIMS

1. A fluid transfer system comprising:

a first fluid transfer container, the first fluid transfer container including:

a tube, the tube including a conical portion at a first end, the tube defining a first interior space;

one or more fluid passages configured to allow flow of fluid into or out of the first interior space of the tube through a second end of the tube opposite the first end;

a first connector disposed at an end of the conical portion, the first connector configured to seal the end of the conical portion when the first connector is joined only to the conical portion,

wherein the first fluid transfer container is configured to be centrifuged while containing a first fluid to separate the first fluid into a cell-rich fraction positioned in the first interior space near the conical portion proximate the first connector and a media-rich fraction positioned in the first interior space near the second end of the tube;

a second fluid transfer container defining a second interior space and having a second connector configured to be joined to the first connector to allow at least a portion of the cell-rich fraction to flow from the first interior space of the first fluid transfer container to the second interior space of the second fluid transfer container; and

a pressure control mechanism configured to increase or decrease a pressure in at least one of the first interior space and the second interior space to transfer the portion of the cell-rich fraction into the second interior space while at least a portion of the media-rich fraction remains in the first interior space.

2. The fluid transfer system of claim 1, wherein the first connector includes at least part of a swabable valve.

3. The fluid transfer system of claim 1, further comprising a cap configured to cover the first connector and at least part of the conical portion.

4. The fluid transfer system of claim 3, wherein the cap is configured to be received in a centrifuge.

5. The fluid transfer system of claim 1, further comprising a transfer assembly and a fluid line connected to the transfer assembly and to one of the one or more fluid passages.

6. The fluid transfer system of claim 1, further comprising a media supply and a fluid line connected to the media supply and to one of the one or more fluid passages.

7. The fluid transfer system of claim 1, further comprising a vent including a filter, and a fluid line connected to the vent and to one of the one or more fluid passages.

8. The fluid transfer system of claim 1, wherein the pressure control mechanism includes a plunger movably disposed within the tube, wherein:
the one or more fluid passages are disposed on the plunger,
the plunger includes a socket, and
the pressure control mechanism further includes a plunger handle configured to be attached to the plunger at the socket, the plunger handle configured such that a space is formed between the plunger handle and the tube, the space configured to accommodate one or more fluid lines configured to be joined to the one or more fluid passages.

9. The fluid transfer system of claim 1, wherein the pressure control mechanism is a syringe including a syringe tube, a plunger, and a luer connector, the luer connector configured to be connected to a transfer container luer connector provided on at least one of the first fluid transfer container and the second fluid transfer container.

10. The fluid transfer system of claim 1, wherein the second fluid transfer container comprises:
a second tube, the second tube including a second conical portion at one end, the second tube defining the second interior space;
wherein the second connector is disposed at an end of the second conical portion, the second connector configured to seal the end of the second conical portion when the second connector is joined only to the second conical portion.

11. The fluid transfer system of claim 10, wherein the first connector forms a first portion of a swabable valve and the second connector forms a second portion of the swabable valve.

12. A method of handling a fluid, comprising:

providing a first fluid transfer container comprising a tube, the tube having a conical portion at a first end and having a second end opposite the first end, wherein the tube defines a first interior space;

connecting, through the second end, one or more fluid lines to fluid passages of the first fluid transfer container;

directing a first fluid through at least one of the one or more fluid lines into the first interior space of the first fluid transfer container, the first fluid including previously frozen cells and first media, the first media including a cryoprotectant;

centrifuging the first fluid transfer container when it contains the first fluid, thereby separating the first fluid into a cell-rich fraction positioned in the first interior space near the conical portion and a media-rich fraction positioned in the first interior space near the second end;

introducing a second fluid into a second interior space of a second fluid transfer container, the second fluid including a second media, the second media containing a lower concentration of the cryoprotectant than the first media;

connecting the first fluid transfer container to the second fluid transfer container by joining a first connector of the first fluid transfer container to a second connector of the second fluid transfer container; and

transferring at least a portion of the cell-rich fraction from the first interior space into the second interior space by using a pressure control mechanism to increase or decrease pressure in at least one of the first interior space and the second interior space while at least a portion of the media-rich fraction remains in the first interior space.

13. The method of claim 12, further comprising placing a cap over the first connector prior to the centrifuging of the first fluid transfer container.

14. The method of claim 12, wherein the first connector is a first portion of a swabable valve, and the second connector is a second portion of the swabable valve.

15. The method of claim 12, wherein the second media does not contain any of the cryoprotectant.

16. The method of claim 12, further comprising directing a mixture comprising at least a portion of the cell-rich fraction transferred into the second interior space and the second media out of the second fluid transfer container by pressurizing the second interior space, wherein the second interior space is pressurized by driving a plunger located within the second interior space.

17. The method of claim 12, further comprising directing a mixture comprising at least a portion of the cell-rich fraction transferred into the second interior space and the second media out of the second fluid transfer container by pressurizing the second interior space, wherein the second interior space is pressurized by driving a plunger of a syringe, the syringe being fluidly connected to the second fluid transfer container by way of a luer connection.