blood withdrawal device; (c) a cell transduction apparatus fluidly connected to the cell separation filter; (d) a cell processing apparatus fluidly connected to the cell transduction apparatus; and (e) a cell therapy infusion device fluidly connected to the cell processing apparatus.

[0005a] In one aspect, the present disclosure refers to a cell therapy production system, comprising: (a) a blood withdrawal device; (b) a cell separation device fluidly connected to the blood withdrawal device; (c) a cell transduction apparatus fluidly connected to the cell separation device; (d) a cell processing apparatus for processing a cell therapy, the cell processing apparatus being fluidly connected to the cell transduction apparatus and to a patient; (e) a cell therapy infusion device capable of returning the cell therapy to the patient, the cell therapy infusion device being fluidly connected to the cell processing apparatus; and (f) an automated process control system configured to automatically control the cell therapy production system.

[0006] In another example, the present disclosure refers to a cell therapy production system, comprising: (a) a blood withdrawal device; (b) an automated cell engineering system, including: i. an enclosable housing; ii. a cell separation device contained within the enclosable housing and fluidly connected to the blood withdrawal device; iii. a cell transduction apparatus contained within the enclosable housing and fluidly connected to the cell separation filter; and iv. a cassette contained within the enclosable housing, the cassette comprising a cell culture chamber fluidly connected to the cell transduction apparatus; and (c) a cell therapy infusion device fluidly connected to the cell culture chamber.

[0007] Also provided herein is a method for preparing a cell therapy product, the method comprising: withdrawing a blood sample from a patient; passing the blood sample through a cell separation device to remove a target cell population from the blood sample; transducing the target cell population with a vector to produce a transduced cell culture; optionally expanding the transduced cell culture; harvesting the cell culture; and infusing the harvested cell culture into the patient.

Brief Description of the Figures

[0008] FIG. 1 shows a cell therapy production system in accordance with embodiments hereof.

[0009] FIG. 2 shows exemplary components of a call therapy production system in accordance with embodiments hereof.

[0010] FIGS. 3A-3B show an automated cell engineering system in accordance with embodiments hereof.

[0011] FIG. 4 shows a cartridge for use in embodiments hereof.

CLAIMS

1. A cell therapy production system, comprising:

   (a) a blood withdrawal device;

   (b) a cell separation device fluidly connected to the blood withdrawal device;

   (c) a cell transduction apparatus fluidly connected to the cell separation device;

   (d) a cell processing apparatus for processing a cell therapy, the cell processing apparatus being fluidly connected to the cell transduction apparatus and to a patient;

   (e) a cell therapy infusion device capable of returning the cell therapy to the patient, the cell therapy infusion device being fluidly connected to the cell processing apparatus; and

   (f) an automated process control system configured to automatically control the cell therapy production system.

2. The system of claim 1, wherein the cell separation device is a cell separation filter that includes a matrix which captures a target cell population.

3. The system of claim 2, wherein the target cell population is a T-cell population.

4. The system of any one of claims 1-3, wherein the cell transduction apparatus is an electroporation unit.

5. The system of any one of claims 1-4, wherein the cell separation device, the cell transduction apparatus and the cell processing apparatus are contained within an automated cell engineering system.

6. The system of any one of claims 1-5, wherein the cell processing apparatus includes a cell culture chamber.

7. The system of any one of claims 5-6, wherein the automated cell engineering system includes an enclosable housing.