[0109] Different volumes of blood are passed through the devices, and the captured cells are eluted using 10% Dextran 40 in saline as the elution fluid, passed through the devices via the elution port using a manually operated syringe.

[0110] The average recovery of total nucleated cells is about 59% for the control, about 84% for the device with a single diffusing plate, and about 90% for the device with first and second diffusing plates.

~~[0111] All references, including publications, patent applications, and patents, cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.~~

[0111] ~~[0112]~~ The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0112] ~~[0113]~~ Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by

CLAIM(S):

1. A biological fluid processing device comprising:
   (a) a housing comprising an inlet portion including one or more ports, an outlet portion including an outlet port and an elution fluid inlet port, and defining a fluid flow path between an inlet portion port and the outlet portion outlet port and a fluid flow path between the outlet portion elution fluid inlet port and an inlet portion port;
   (b) a porous fibrous leukocyte depletion filter having a first surface and a second surface, disposed in the housing across the fluid flow paths; and
   (c) a first perforated diffusing plate having a first surface and a second surface, disposed in the housing across the fluid flow paths, wherein the diffusing plate is disposed in the housing between the second surface of the leukocyte depletion filter and the outlet portion ports.

2. The device of claim 1, wherein the perforated diffusing plate comprises perforations arranged in a pattern of two or more generally concentric circles.

3. The device of claim 1 or 2, wherein the perforated diffusing plate comprises perforations arranged in a non-concentric pattern.

4. The device of any one of claims 1-3, wherein the first surface of the perforated diffusing plate includes upwardly protruding ridges.

5. The device of claim 4, wherein the first surface of the perforated diffusing plate includes a plurality of upwardly protruding concentric ridges.

6. The device of claim 5, wherein the ridges are non-continuous, and alternating rows of ridges are interrupted by perforations.

7. The device of any one of claims 1-6, further comprising a second perforated diffusing plate having a first surface and a second surface, disposed in the housing across the fluid flow paths, wherein the diffusing plate is disposed in the housing between the first surface of the leukocyte depletion filter and the inlet portion port(s).

8. The device of any one of claims 1-7, wherein the inlet portion comprises an inlet portion inlet port, and a separate inlet portion elution fluid outlet port, and the housing defines a fluid flow path between the inlet portion inlet port and the outlet portion outlet port and a fluid flow path between the outlet portion elution fluid inlet port and the inlet portion elution fluid outlet port.

9. A method for obtaining one or more biological fluid components, comprising:
   (a) passing a biological fluid through the biological fluid filter device of any one of claims 1-8, wherein the fluid passes from an inlet portion port of the device through an outlet portion port of the device, wherein one or more desired biological fluid components are retained by the filter as the fluid passes along a fluid flow path from an inlet portion port through an outlet portion port;
   (b) passing an elution fluid from an outlet portion elution fluid inlet port through the diffusing plate, the leukocyte depletion filter, and an inlet portion port, wherein the biological fluid component elution fluid elutes one or more biological fluid components from the filter; and,
   (c) obtaining one or more eluted biological fluid components.

10. The method of claim 9, comprising obtaining eluted leukocytes and/or stem cells.

CLAIM(S):

1. A biological fluid processing device (1000) comprising:
   (a) a housing (600) comprising an inlet portion (100) including one or more ports, an outlet portion (200) including an outlet port (201a) and an elution fluid inlet port (300), and defining a fluid flow path between an inlet portion port (101a) and the outlet portion outlet port (201a) and a fluid flow path between the outlet portion elution fluid inlet port (300) and an inlet portion port (101a);
   (b) a porous fibrous leukocyte depletion filter (500) having a first surface (501) and a second surface (502), disposed in the housing (600) across the fluid flow paths; and
   (c) a first perforated diffusing plate (400) having a first surface (410) and a second surface (420), disposed in the housing (100) across the fluid flow paths, wherein the diffusing plate (400) is disposed in the housing (600) between the second surface (502) of the leukocyte depletion filter (500) and the outlet portion ports (201a).

2. The device of claim 1, wherein the perforated diffusing plate (400) comprises perforations (450) arranged in a pattern of two or more generally concentric circles.

3. The device of claim 1 or 2, wherein the perforated diffusing plate (400) comprises perforations (450) arranged in a non-concentric pattern.

4. The device of any one of claims 1-3, wherein the first surface (410) of the perforated diffusing plate (400) includes upwardly protruding ridges (411).

5. The device of claim 4, wherein the first surface (410) of the perforated diffusing plate (400) includes a plurality of upwardly protruding concentric ridges (411).

6. The device of claim 5, wherein the ridges (411) are non-continuous, and alternating rows of ridges are interrupted by perforations (450).

7. The device of any one of claims 1-6, further comprising a second perforated diffusing plate (400') having a first surface (410') and a second surface (420'), disposed in the housing across the fluid flow paths, wherein the diffusing plate (400') is disposed in the housing between the first surface (501) of the leukocyte depletion filter (500) and the inlet portion port(s).

8. The device of any one of claims 1-7, wherein the inlet portion (100') comprises an inlet portion inlet port (101a'), and a separate inlet portion elution fluid outlet port (101b), and the housing defines a fluid flow path between the inlet portion inlet port (101a') and the outlet portion outlet port (201a) and a fluid flow path between the outlet portion elution fluid inlet port (300) and the inlet portion elution fluid outlet port (101b).

9. A method for obtaining one or more biological fluid components, comprising:
   (a) passing a biological fluid through the biological fluid filter device of any one of claims 1-8, wherein the fluid passes from an inlet portion port of the device through an outlet portion port of the device, wherein one or more desired biological fluid components are retained by the filter as the fluid passes along a fluid flow path from an inlet portion port through an outlet portion port;
   (b) passing an elution fluid from an outlet portion elution fluid inlet port through the diffusing plate (400/400'), the leukocyte depletion filter (500), and an inlet portion port, wherein the biological fluid component elution fluid elutes one or more biological fluid components from the filter (500); and,
   (c) obtaining one or more eluted biological fluid components.

10. The method of claim 9, comprising obtaining eluted leukocytes and/or stem cells.