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- Published:**
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 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

(54) Title: FLUID COMPONENT SEPARATION DEVICES, METHODS, AND SYSTEMS

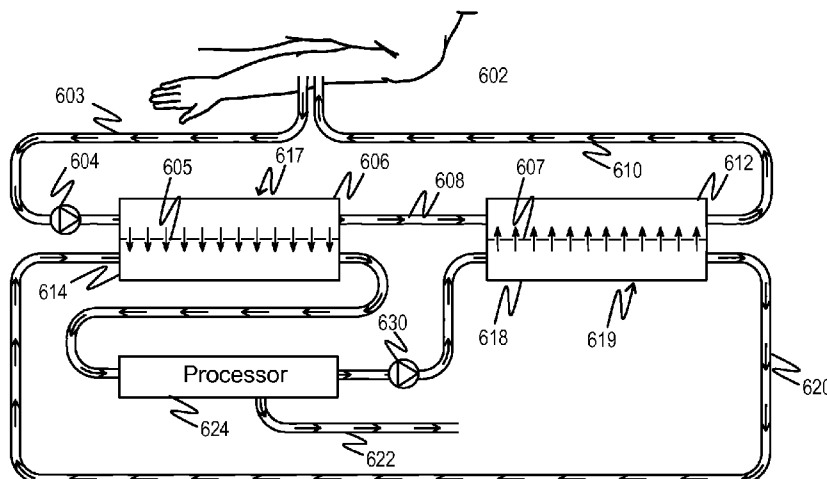


Fig. 8A

(57) Abstract: A system for ultrafiltration employs a crossflow filtration module for extracting a fraction from a sample fluid (e.g., blood) and a recirculating permeate loop to produce a concurrent permeate flow through the filtration module to maintain a positive transmembrane pressure at all points of the crossflow filter. Permeate in the recirculating loop is enriched by a processing module and stabilized by removing an enriched fraction thereof. In an embodiment, the enriched fraction is concentrated plasma that is returned to a patient.



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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61M1/34 B01D61/14
 ADD.
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 A61M B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/114595 A1 (WALLENAS ANDERS [SE] ET AL) 7 May 2009 (2009-05-07) paragraphs [0041] - [0054] - paragraphs [0057] - [0086]; figures 1,4-9 -----	1-3, 5-10, 12-18, 125,126
X	US 4 105 547 A (SANDBLOM ROBERT MAURITZ) 8 August 1978 (1978-08-08) the whole document -----	39,40
X	US 2009/120873 A1 (BECKER NATHANIEL T [US] ET AL) 14 May 2009 (2009-05-14) paragraphs [0012], [0015], [0142]; claims 1,2; figure 2 ----- -/--	39,40

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 19 April 2013	Date of mailing of the international search report 07/10/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Van Veen, Jennifer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/059247

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7 316 780 B1 (FENDYA THOMAS J [US] ET AL) 8 January 2008 (2008-01-08) column 3, line 7 - line 21 -----	39,40
X	US 4 191 182 A (MONCRIEF JACK W [US] ET AL) 4 March 1980 (1980-03-04) column 4, line 28 - line 35 column 7, line 36 - column 8, line 52; figure 2 -----	39
A		53,127
A	US 4 789 482 A (DILEO ANTHONY J [US] ET AL) 6 December 1988 (1988-12-06) column 6, line 17 - column 7, line 22; figure 1 -----	53

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/059247

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US 2009114595	A1	07-05-2009	AU 2006214829 A1	24-08-2006
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/059247

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: 19-38, 56-126
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-18, 39, 40, 53-55, 125-127

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-18, 39, 40, 53-55, 125-127

Apparatus (and corresponding method and system) for filtration, comprising a crossflow filter with a retentate and a permeate channel separated by a filter, and a recirculation channel connecting the permeate channel outlet with the permeate channel inlet.

2. claims: 41-52

Microfluid separation device (and corresponding method), comprising multiple flow channels, a fluid delivery system, and a controller to regulate flow rates.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 19-38, 56-126

Claims 19-38, 56-126 relate to a method for treatment of the human or animal body surgery/therapy, because it/they all [implicitly] comprise the step of returning a substance (such as ultrafiltered permeate, plasma and/or blood) to a patient, per se requiring professional medical skills and involving health risks even when carried out with the required medical care and expertise (G1/07). This Authority is not required to search the present application with respect to the aforementioned claims (Article 17(2)(b) PCT and Rule 39.1(iv) PCT). Consequently, no International Search Report and no Written Opinion (Rule 67.1 PCT in combination with Rule 43bis.1(b) PCT) have been established with respect to them.