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(71) Applicant (for all designated States except US): **LIFE TECHNOLOGIES CORPORATION** [US/US]; 5791 Van Allen Way, Carlsbad, California 92008 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DAVIES, Mark** [GB/IE]; 12 Harbour View Terrace, South Circular Road, Limerick (IE). **DALTON, Tara** [IE/IE]; Ravens, Ashfort, Patrickswell, Limerick (IE).

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[Continued on next page]

(54) Title: FORMING SAMPLE COMBINATIONS USING LIQUID BRIDGE SYSTEMS

(57) Abstract: The present invention generally relates to methods of constructing liquid bridges and methods of forming predetermined combinations of samples using liquid bridges.

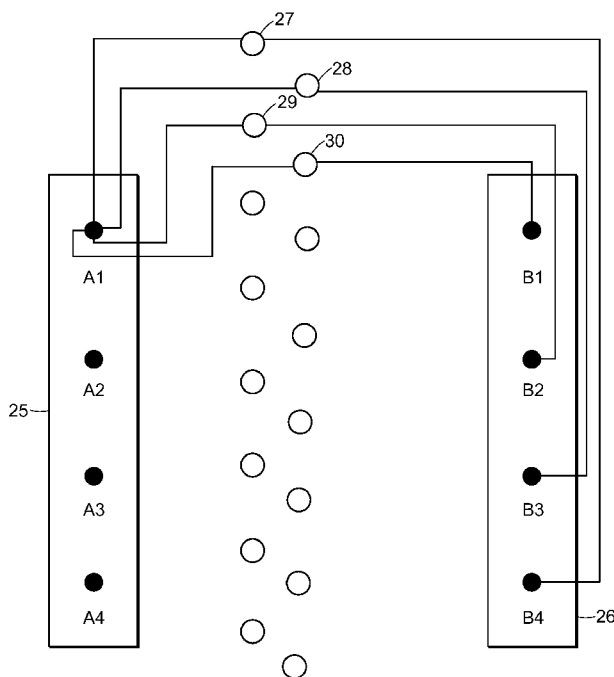


FIG. 4

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Published:

- *with international search report (Art. 21(3))*
- *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))*

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER					
INV.	B01F13/00	B01F15/02	B01F5/04	B01J19/00	B01L3/00
	B01L7/00	C12Q1/68	F04B43/04	G01N1/34	G01N35/00
	G01N35/08	G01N33/50			

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) B01F B01J B01L C12Q F04B G01N

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 practical, search terms used) EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/091229 A1 (STOKES BIO LTD [IE]; DAVIES MARK [IE]; DALTON TARA [IE]; GARVEY JULIE) 16 August 2007 (2007-08-16) cited in the application page 1, line 30 - page 5, line 3; claim 20 page 8, line 17 - page 9, line 10; figure 7	1-14
X	WO 2007/091228 A1 (STOKES BIO LTD [IE]; DAVIES MARK [IE]; DALTON TARA [IE]; CURRAN KIERAN) 16 August 2007 (2007-08-16) cited in the application page 11, line 20 - page 14, line 16; figure 6	1-14
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document but published on or after the international filing date	"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.
"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)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 28 October 2010	Date of mailing of the international search report 09/11/2010
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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 Smith-Hewitt, Laura
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 574 586 A2 (SAMSUNG ELECTRONICS CO LTD [KR]) 14 September 2005 (2005-09-14) paragraph [0068] - paragraph [0073]; claims; figure 5 -----	1-14
A	US 2006/257893 A1 (TAKAHASHI TORU [JP] ET AL) 16 November 2006 (2006-11-16) the whole document -----	1-14
A	WO 2007/091230 A1 (STOKES BIO LTD [IE]; DAVIES MARK [IE]; DALTON TARA [IE]) 16 August 2007 (2007-08-16) cited in the application claim 19 -----	19

INTERNATIONAL SEARCH REPORT

International application No.
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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.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 15-19
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:
see FURTHER INFORMATION sheet PCT/ISA/210

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:

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.:

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

Continuation of Box II.2

Claims Nos.: 15-19

Present claim 15 relates to an apparatus which has a given desired property or effect, namely a "gas free sampling device". However, the description does not provide disclosure in the sense of Article 6 and 5 PCT for any such apparatus having the said property or effect (the only explanation might be found in document US12/468367 filed May 19 2009, but this is not a public document). There is no common general knowledge of this kind available to the person skilled in the art. As the interaction between the arrays and the "gas free sampling device" cannot be understood without a further definition of this apparatus, and as this is an essential feature of the device, no meaningful search of claim 15 (and thus dependent claims 16-19) was possible at all (PCT Guidelines 9.19).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2010/001254

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2007091229	A1	16-08-2007	AT 477844 T	15-09-2010
			EP 1981625 A1	22-10-2008
			US 2010015606 A1	21-01-2010
WO 2007091228	A1	16-08-2007	EP 1981624 A1	22-10-2008
			US 2008277494 A1	13-11-2008
EP 1574586	A2	14-09-2005	CN 1680574 A	12-10-2005
			JP 4504846 B2	14-07-2010
			JP 2005253466 A	22-09-2005
			KR 20050091366 A	15-09-2005
			US 2005202489 A1	15-09-2005
			US 2010015695 A1	21-01-2010
			US 2010021972 A1	28-01-2010
US 2006257893	A1	16-11-2006	US 2009227007 A1	10-09-2009
WO 2007091230	A1	16-08-2007	EP 1991357 A1	19-11-2008
			US 2008280331 A1	13-11-2008