



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>5</sup> : <b>G01N 21/07</b></p>	<p><b>A3</b></p>	<p>(11) International Publication Number: <b>WO 91/02238</b> (43) International Publication Date: 21 February 1991 (21.02.91)</p>
<p>(21) International Application Number: PCT/US90/04251 (22) International Filing Date: 30 July 1990 (30.07.90) (30) Priority data: 387,917 31 July 1989 (31.07.89) US (71) Applicant: BIOTOPE, INC. [US/US]; 12277 134th Court N.E., Redmond, WA 98052 (US). (72) Inventors: KLEIN, Gerald, L. ; 3804 E. Walnut, Orange, CA 92669 (US). KINGSLEY, John, T. ; 13804 209th Ave. N.E., Woodinville, WA 98072 (US). FINE, Richard, A. ; 5 Eden Lane West, Mercer Island, WA 98040 (US).</p>		<p>(74) Agents: FOLISE, Michael, J. et al.; Seed and Berry, 6300 Columbia Center, Seattle, WA 98104-7092 (US). (81) Designated States: AT (European patent), BE (European patent), CA, CH (European patent), DE (European patent)*, DK (European patent), ES (European patent), FR (European patent), GB (European patent), IT (European patent), JP, KR, LU (European patent), NL (European patent), SE (European patent). <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 16 May 1991 (16.05.91)</p>
<p>(54) Title: BIOLOGICAL ASSAY CASSETTE AND METHOD FOR MAKING SAME</p>		
<p>(57) Abstract</p> <p>A modular reaction cassette (20) has a fluid metering mechanism (70) and valves (74, 78) for releasing fluid which are actuated by various centripetal accelerations generated in an automated patient analysis instrument having a variable speed rotor (24). Various geometries and sealant materials are used to select the rotational speed at which the sealant material yields to operate the metering device and release valves.</p>	<p>The diagram shows a vertical cross-section of a biological assay cassette (20). At the top, there is a rotor (24) with a variable speed. Below it, a fluid metering mechanism (70) is shown, which includes a valve (74) and a valve (78). The cassette (20) is connected to a tube (36) that leads to a chamber (38) at the bottom. Various other components are labeled with numbers: 102, 126, 50, 138, 120, 52, 108, 70, 116, 54, 72, 74, 56, 76, 78, 58, 82, 80, 36, 30, 48, 46, 44, 38, 90, 32, 100, 104, 106, 112, 138, 34, 60, ac.</p>	

### DESIGNATIONS OF "DE"

Until further notice, any designation of "DE" in any international application whose international filing date is prior to October 3, 1990, shall have effect in the territory of the Federal Republic of Germany with the exception of the territory of the former German Democratic Republic.

#### FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	ES	Spain	MG	Madagascar
AU	Australia	FI	Finland	ML	Mali
BB	Barbados	FR	France	MR	Mauritania
BE	Belgium	GA	Gabon	MW	Malawi
BF	Burkina Faso	GB	United Kingdom	NL	Netherlands
BG	Bulgaria	GR	Greece	NO	Norway
BJ	Benin	HU	Hungary	PL	Poland
BR	Brazil	IT	Italy	RO	Romania
CA	Canada	JP	Japan	SD	Sudan
CF	Central African Republic	KP	Democratic People's Republic of Korea	SE	Sweden
CC	Congo	KR	Republic of Korea	SN	Senegal
CH	Switzerland	LI	Liechtenstein	SU	Soviet Union
CI	Côte d'Ivoire	LK	Sri Lanka	TD	Chad
CM	Cameroon	LU	Luxembourg	TG	Togo
DE	Germany	MC	Monaco	US	United States of America
DK	Denmark				

# INTERNATIONAL SEARCH REPORT

International Application No **PCT/US 90/04251**

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>6</sup>		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC <sup>5</sup> :            G 01 N 21/07		
<b>II. FIELDS SEARCHED</b>		
Minimum Documentation Searched <sup>7</sup>		
Classification System	Classification Symbols	
IPC <sup>5</sup>	B 01 L 3/00, G 01 N 21/00	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>8</sup>		
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <sup>9</sup>		
Category <sup>10</sup>	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>
A	EP, A, 0160282 (ABBOTT) 6 November 1985 see page 2, line 28 - page 5, line 3; page 10, lines 2-16; page 15; claims; figures 3-5 cited in the application  ---	1,8,12,13
A	US, A, 4279863 (FRIEHLER) 21 July 1981 see column 2, line 22 - column 3, line 5; figures 2,3  -----	1,9
<p><sup>10</sup> Special categories of cited documents: <sup>10</sup></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document 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</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>"A" document member of the same patent family</p>		
<b>IV. CERTIFICATION</b>		
Date of the Actual Completion of the International Search  21st December 1990		Date of Mailing of this International Search Report  11. 04. 91
International Searching Authority  EUROPEAN PATENT OFFICE		Signature of Authorized Officer  <i>N. Toribio</i> Nuria TORIBIO

## FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

V.  OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE<sup>1</sup>

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

1.  Claim numbers ..... because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claim numbers ..... 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.  Claim numbers ..... because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI.  OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING<sup>2</sup>

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

- 1.- Claims 1-13, 22
- 2.- Claims 14-17
- 3.- Claims 18-19
- 4.- Claims 20-21

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.
2.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:
3.  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 claim numbers: 1-13, 22
4.  As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

## Remark on Protest

- The additional search fees were accompanied by applicant's protest.  
 No protest accompanied the payment of additional search fees.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT  
ON INTERNATIONAL PATENT APPLICATION NO.**

US 9004251  
SA 40228

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 02/04/91. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A- 0160282	06-11-85	AU-B- 574169	30-06-88
		AU-A- 4186685	07-11-85
		CA-A- 1266420	06-03-90
		JP-A- 60238760	27-11-85
		US-A- 4883763	28-11-89
-----			
US-A- 4279863	21-07-81	None	
-----			