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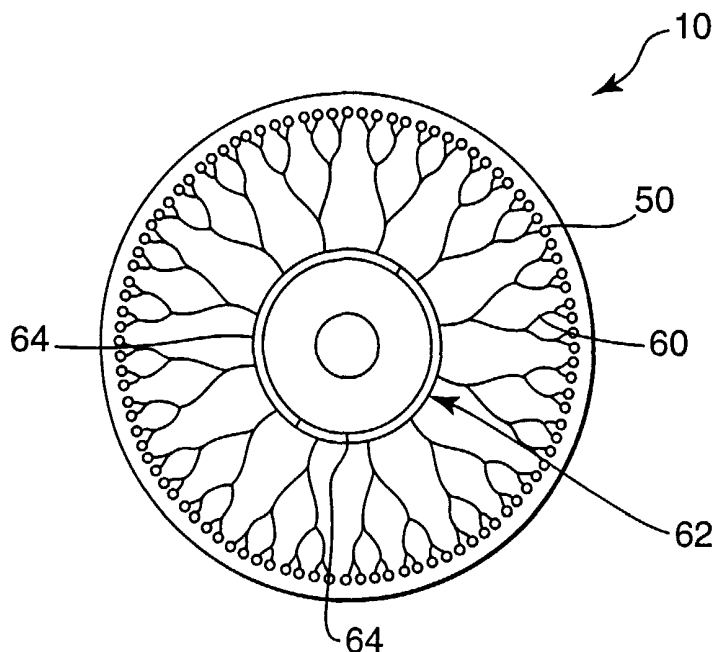
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- (74) Agents: **SPRAGUE, Robert W.** et al.; Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, MN 55133-3427 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EC, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
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- Published:**
- with international search report
  - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: SAMPLE PROCESSING DEVICES, SYSTEMS AND METHODS



(57) Abstract: Devices, systems, and methods for processing sample materials. The sample materials may be located in a plurality of process chambers in the device, which is in the form of a disk, rotated during heating of the sample materials. The temperature of the disk may be controlled by directing electromagnetic energy at its bottom surface while rotating it. Sample materials may be moved between process chambers using centrifugal force.



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10 October 2002

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/20707

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01L7/00 B01L3/00 B01J19/00 G01N21/07 C12Q1/68

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)

IPC 7 B01L C12Q G01N F28F B04B G05D F16K

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 Y A	<p>EP 0 693 560 A (BECTON DICKINSON CO) 24 January 1996 (1996-01-24)</p> <p>column 7, line 48 -column 9, line 21 column 11, line 16-19,35-40 column 12, line 55-58 column 13, line 55,56 column 14, line 10-17,39-45 column 16, line 22 -column 17, line 35 column 18, line 43 -column 19, line 4 column 20, line 6-39 figures 2-4,15,16 claims 1,8</p> <p style="text-align: center;">-/--</p>	<p>14, 19, 20</p> <p>1-6, 15, 16, 21, 25 12, 13, 37, 40-42, 58-60, 62, 82, 83</p>

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*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)
- \*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

- \*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
- \*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
- \*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.
- \* & \* document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 August 2002	22. 08. 2002

Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Wyplosz, N
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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.
Y	<p>-----</p> <p>WO 97 46707 A (RASMUSSEN RANDY P ;UNIV UTAH RES FOUND (US); RIRIE KIRK M (US); WI) 11 December 1997 (1997-12-11) page 28, line 19 -page 29, line 14</p> <p>-----</p>	1-6,15, 16,21,25
A	<p>WO 98 53311 A (GAMERA BIOSCIENCE CORP) 26 November 1998 (1998-11-26)</p> <p>page 13, line 9-12 page 19, line 9-17 page 21, line 5-9 page 25, line 6-11,23-31 page 46, line 15 -page 49, line 6 page 52, line 9 -page 55, line 10 page 85, line 25 -page 87, line 5 figures 1,2,5,29,39</p> <p>-----</p>	7,9, 11-13, 25,37, 39-47, 58-62, 81,83,84
A	<p>US 5 863 502 A (SOUTHGATE PETER DAVID ET AL) 26 January 1999 (1999-01-26) figures 10,14 column 4, line 26 - line 30 column 5, line 57 - line 60 column 18, line 39 - line 42 column 18, line 55 -column 19, line 29 claims 11,12</p> <p>-----</p>	9,37,81
A	<p>WO 97 21090 A (GAMERA BIOSCIENCE) 12 June 1997 (1997-06-12) page 22, line 5 - line 17 page 24, line 20 -page 28, line 9</p> <p>-----</p>	43,44,56
A	<p>US 4 244 916 A (GUIGAN JEAN) 13 January 1981 (1981-01-13) column 2, line 56 - line 57</p> <p>-----</p>	47,61
A	<p>DE 37 12 624 A (HOLZER WALTER) 3 November 1988 (1988-11-03) column 2, line 5 - line 13 figures 2,3</p> <p>-----</p>	56,57
A	<p>EP 0 810 030 A (PERKIN ELMER CORP) 3 December 1997 (1997-12-03) page 9, line 18 - line 21</p> <p>-----</p>	38,85

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/20707

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.:  
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 II Observations where unity of invention is lacking (Continuation of item 2 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 fee, this Authority did not invite payment of any additional fee.
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.:  
1-47, 56-62 (in part), 81-85
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.
- 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: 1-8, 14-24, 25-36, 10 (in part), 56-62 (in part)

claims 10, 56-62: insofar they relate to one of the claims 1-8, 14-24 or 25-36

a method of conducting a thermal cycling process with control of the temperature by directing electromagnetic energy to a thermal structure while rotating

2. Claims: 9-13, 37-47, 81-85,  
10 (in part) and 56-62 (in part)

claims 10 and 56-62: insofar they relate to one of the claims 9-13, 37-47 or 81-85

a method of conducting a thermal cycling process with control of the temperature by a thermoelectric module while rotating

3. Claims: 48-55, 56-62 (in part)

claims 56-62: insofar they relate to one of the claims 48-55

a method providing a device comprising a loading chamber and a first process chamber

4. Claims: 63-69

a device with valves comprising impermeable barriers

5. Claims: 70, 73

a device with a seal comprising shape memory polymer

6. Claim : 74

a device with a control pattern comprising at least one indicator

7. Claims: 75-80

a method of processing sample material comprising providing paramagnetic particles and a magnet

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

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PCT/US 01/20707

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