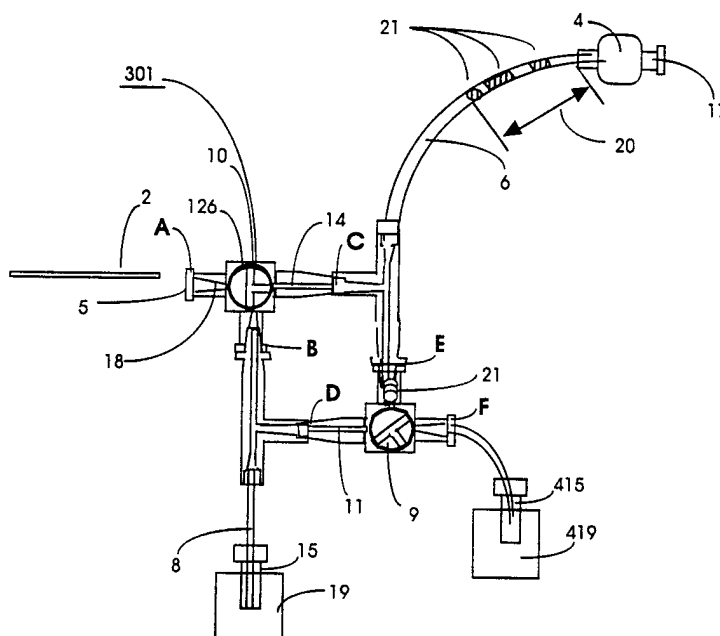




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G01N 35/00, B01L 7/00, 3/00, 11/00 // C12Q 1/48, 1/68	A3	(11) International Publication Number: WO 98/42874 (43) International Publication Date: 1 October 1998 (01.10.98)
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(54) Title: BIOMOLECULAR PROCESSOR**(57) Abstract**

A process and apparatus for isolating and purifying nucleic acids and other target molecules directly from blood, plasma, urine, cell cultures and the like by totally automated means, without centrifugation, aspiration or vacuum; after mixing and heating a nucleic acid containing sample with lysis reagent in an environmentally isolated compartment, nucleic acids are absorbed onto a binding filter and eluted in a small volume using heated elution reagent; a preferred embodiment purifies nucleic acids and automatically detects target sequences from a sample of fresh blood. Another embodiment purifies target molecules from a multitude of samples held in microtiter plates; test kits for each embodiment include disposable isolation and detection devices and associated reagents.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/06029

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G01N35/00 B01L7/00 B01L3/00 B01L11/00
//C12Q1/48,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 6 G01N B01L

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 775 635 A (EBERSOLE RICHARD C ET AL) 4 October 1988 see column 2, line 32 - column 3, line 5 see column 5, line 7 - column 6, line 64 see column 8, line 14 - column 8, line 32 see column 8, line 43 - column 9, line 68 see column 10, line 23 - column 10, line 42 see column 10, line 65 - column 13, line 12 see column 15, line 3 - column 16, line 24 see column 18, line 54 - column 19, line 56	1,12
A	see column 20, line 63 - column 21, line 17 see figures 1-9 --- -/--	2,18,19

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

15 June 1998

Date of mailing of the international search report

- 7. 10. 98

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Koch, A

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/06029

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 0 487 028 A (SHIMADZU CORP) 27 May 1992 see column 1, line 1 - column 2, line 7 see column 2, line 21 - column 3, line 8 see column 3, line 18 - column 3, line 35 see column 3, line 46 - column 4, line 31 see column 4, line 55 - column 8, line 52 see figure 1 ---	1-4, 8-10, 12-14,20
P,A	WO 97 32645 A (AKZO NOBEL NV ;CHEMELLI BENJAMIN J (US); ROBINSON DONALD (US); BOR) 12 September 1997 see page 3, line 2 - page 7, line 5 see page 10, line 5 - page 12, line 10 see page 14, line 5 - page 20, line 3 see page 23, line 14 - page 23, line 26 see page 25, line 1 - page 27, line 10 see page 31, line 5 - page 31, line 14 see figures 1-11,16,18 ---	1-4, 7-11,13, 14,18,19
P,A	US 5 645 723 A (FUJISHIRO MASATOSHI ET AL) 8 July 1997 see column 4, line 20 - column 6, line 14 see column 6, line 29 - column 8, line 47 see figures 1-3,5-8 -----	1-4, 7-14, 18-20

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 98/ 06029

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:

1. CLAIMS : 1-16, 18-21

2. CLAIMS : 17

FOR FURTHER INFORMATION SEE PLEASE PCT/ISA/206 MAILED 06.07.98

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.:
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.:

1-16, 18-21

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

1. Claims: 1-16,18-21

Process of isolating and purifying nucleic acids and the like, and machine for carrying out the process.

2. Claim : 17

Sample tubes having protrusions on their internal surfaces

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/06029

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4775635 A	04-10-88	US 4753775 A	28-06-88
		CA 1276549 A	20-11-90
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