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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))

[Continued on next page]

(54) Title: BLOOD COLLECTION DEVICE FOR STABILIZING CELL -FREE PLASMA DNA

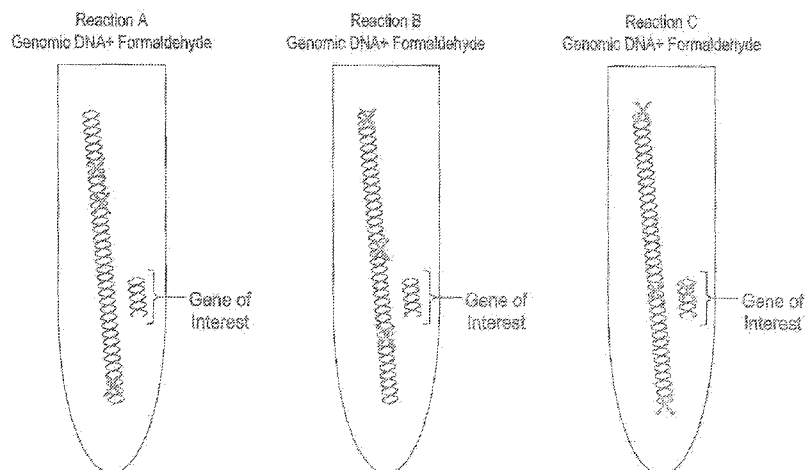


Fig - 5

(57) Abstract: Methods and devices for stabilizing and preserving circulating cell- free plasma DNA for analysis are disclosed. The methods and devices use diazolidinyl urea or imidazolidinyl urea as a preservative, EDTA as an anticoagulant and glycine as a quenching agent to quench any free formaldehyde from the protective composition.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/025912

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12Q1/68
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)
C12Q

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)

EP0-Internal, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/184069 A1 (FERNANDO M ROHAN [US] ET AL) 22 July 2010 (2010-07-22) paragraphs [0003], [0012] - [0018], [0039], [0043], [0050]; examples 1-3 ----- -/--	1-20



Further documents are listed in the continuation of Box C.



See patent family 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 application or patent 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

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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.
X	Schatz et al.: "PRESERVATION OF CELL-FREE DNA IN STORED BLOOD SAMPLES FOR THE ANALYSIS OF THE (M)SEPT9 COLORECTAL CANCER SCREENING MARKER ENABLES SAMPLE SHIPMENT BY MAIL", May 2011 (2011-05), XP002699458, Published as a poster at the conference on international federation of clinical chemistry and laboratory medicine Worldlab and EU, Berlin, Germany Retrieved from the Internet: URL:http://www.epiprocolon.com/uploads/tx_txpublicationslist/epi-poster-IFCC-1-A4.pdf [retrieved on 2013-06-25] the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/025912

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.:
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.:

1-10(completely); 11-20(partially)

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: 1-10(completely); 11-20(partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is glycine.

2. claims: 11-20(partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is lysine.

3. claims: 11-20(partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is ethylene diamine.

4. claims: 11-18, 20(all partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is arginine.

5. claims: 11-20(partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is urea.

6. claims: 11-18, 20(all partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is adinine.

7. claims: 11-18, 20(all partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is guanine.

8. claims: 11-18, 20(all partially)

Methods for blood sample treatment or stabilizing a

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

biological sample using a preservative agent and a quenching agent wherein the quenching agent is cytosine.

9. claims: 11-18, 20(all partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is thymine.

10. claims: 11-18, 20(all partially)

Methods for blood sample treatment or stabilizing a biological sample using a preservative agent and a quenching agent wherein the quenching agent is spermidine.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010184069 A1	22-07-2010	EP 2228453 A1	15-09-2010
		EP 2626438 A1	14-08-2013
		US 2010184069 A1	22-07-2010
