Title: A DEVICE FOR AGGREGATING, IMAGING AND ANALYZING THROMBI AND A METHOD OF USE

Abstract: An instrument for capturing an image of thrombus formation, blood coagulation, recruitment of circulating inflammatory or tumour cells in a blood sample. The instrument comprises a member defining a channel therethrough, a fluid handling assembly that permits the blood sample to move through the channel at a flow rate, and an imaging assembly including a microscopy device. The imaging assembly is disposed relative to the channel so as to capture light rays defining the image of thrombus formation in the channel.
Declaration under Rule 4.17:
— as to applicant’s entitlement to apply for and be granted a patent (Rule 4.17(ii))

before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

Published:
— with international search report

(88) Date of publication of the international search report:
13 November 2008
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - A61B 5/00 (2008.04)
USPC - 600/369
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(8) - A61B 5/00 (2008.04)
USPC - 600/369

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC(8) - A61B 5/00 (2008.04)
USPC - 600/369; 435/287.1

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWest: US PAT, US PGUPUB, US OCR, EPO, JPO; Google Scholar Keywords: blood, hemoglobin, hemodynamic, channel, chamber, reservoir, syringe, tank, sample, thrombus, transparent, inlet, outlet, analyzer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 6,319,469 B1 (Mian et al.) 20 November 2001 (20.11.2001) col. 3, In 31-35; col. 8, In 16-18; col. 31, In 37-39; col. 9, In 15-20; col. 12, In 8-11; col. 21, In 30-45; col. 25, In 51-64; col. 26, In 8-15; col. 28, In 34-48; col. 38, In 49-60; col. 52, In 51-67</td>
<td>1, 2, and 43-45</td>
</tr>
</tbody>
</table>

* 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

Further documents are listed in the continuation of Box C.

Date of the actual completion of the international search
05 September 2008 (05.09.2008)

Date of mailing of the international search report
15 SEP 2008

Name and mailing address of the ISA/AUS
Mail Stop PCT, Attn: ISA/AUS, Commissioner for Patents
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PCT OSP: 571-272-7773

Form PCT/ISA/210 (second sheet) (April 2007)
INTERNATIONAL SEARCH REPORT

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:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I: claims 1-2 and 43-45: directed to a member for capturing a component of a blood sample comprising a body defining at least one channel for holding a microscopic volume.

Group II: claims 3 and 31-34: directed to a method of quantifying a thrombus formation comprising digitally capturing real-time thrombus formation, correlating the electrical signal to a first grayscale digital image data array, reducing the background noise and determining at least one discrete thrombus formation, and quantifying the discrete thrombus formation.

Group III: claims 4-30, 35-42 and 46-47: directed to an instrument and method for capturing an image of rolling, adhesion, aggregation, disaggregation in a blood sample comprising a microchip member defining a longitudinal axis, a fluid handling assembly, an imaging assembly and an analyzer.

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 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. 1, 2, and 43-45.

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.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2007)