

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number  
WO 2004/097365 A3

(51) International Patent Classification<sup>7</sup>: G01N 21/35

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(21) International Application Number:  
PCT/IB2004/001317

(22) International Filing Date: 30 April 2004 (30.04.2004)

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(25) Filing Language: English

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(26) Publication Language: English

(30) Priority Data:  
60/466,462 30 April 2003 (30.04.2003) US

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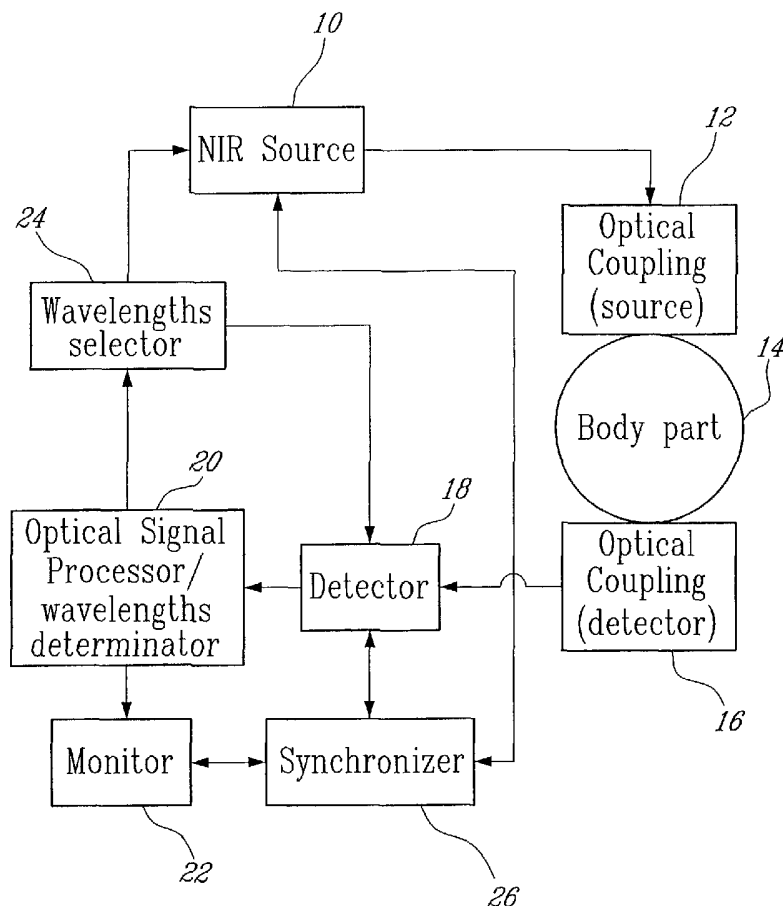
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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR MEASURING LACTATE LEVELS IN VIVO



(57) Abstract: There is described a system and method for the in vivo determination of lactate levels in blood using Near-Infrared Spectroscopy (NIRS) and/or Near-infrared Raman Spectroscopy (NIR-RAMAN). The method teaches measuring lactate in vivo comprising: optically coupling a body part (14) with a light source (10) and a light detector (18) the body part having tissues comprising blood vessels; injecting near-infrared (NIR) light at one or a plurality of wavelengths in the body part; detecting, as a function of blood volume variations in the body part, light exiting the body part at at least the plurality of wavelengths to generate an optical signal (20); and processing the optical signal as a function of the blood volume variations to obtain a lactate level in blood.

WO 2004/097365 A3



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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

**(88) Date of publication of the international search report:**  
16 December 2004

**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/IB04/01317

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC(7) : G01N 21/35		
US CL : 422/82.05, 82.09; 436/63, 164; 600/473, 475		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 422/82.05, 82.09; 436/63, 164; 600/473, 475		
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)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/16577 A1 (SCECINA et al) 08 March 2001, see claim 1 and page 15.	1-4, 21-26
Y	WO 01/16578 A1 (PAWLUCZYK et al) 08 March 2001, see claim 1 and page 18.	1-4, 21-26
Y	US 5,459,317 A (SMALL et al) 17 October 1995, see claims 1 and 9, and column 7.	1-4, 21-26
Y	US 2002/0151774 A1 (SOLLER et al) 17 October 2002, see page 5, right hand column.	24-26
A	US 6,438,397 B1 (BOSQUET et al) 20 August 2002, entire document.	1-4, 21-26
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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	"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
"E"	earlier application or patent published on or after the international filing date	"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
"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)	"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
"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	"&" document member of the same patent family
Date of the actual completion of the international search		Date of mailing of the international search report
07 September 2004 (07.09.2004)		01 NOV 2004
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Jeffrey R. Snay <i>J. Whiteful</i> Telephone No. (703) 308-0661 <i>fas</i>

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB04/01317

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

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

1.  Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claim 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.  Claim Nos.: 5-20  
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.  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.:
- Remark on Protest**     The additional search fees were accompanied by the applicant's protest.  
                                   No protest accompanied the payment of additional search fees.