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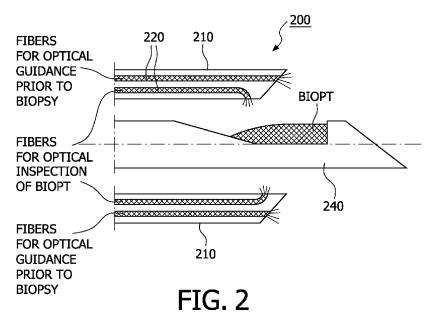
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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: BIOPSY GUIDANCE BY ELECTROMAGNETIC TRACKING AND PHOTONIC NEEDLE



(57) Abstract: A system for providing integrated guidance for positioning a needle in a body has two levels of guidance: a coarse guidance and a fine guidance. The system comprises a non-invasive tracking system (400) for tracing the biopsy device (100) in the body, for providing the coarse guidance. Furthermore, the system comprises an optical detector (101', 102', 103') mounted on the needle (100) for obtaining optical information discriminating tissue in the body, for providing the fine guidance.







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- with international search report (Art. 21(3))
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INTERNATIONAL SEARCH REPORT

International application No PCT/IB2009/050793

A. CLASSIFICATION OF SUBJECT MATTER INV. A61B19/00 A61B5/00

A61B10/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

 $\begin{tabular}{ll} Minimum documentation searched (classification system followed by classification symbols) \\ A61B \end{tabular}$

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. DOCUM	ENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	US 2005/154277 A1 (TANG JING [US] ET AL) 14 July 2005 (2005-07-14) paragraph [0041] - paragraph [0080] claims 1-21; figures	1,4,8
X	WO 2007/147058 A (CORNOVA INC [US]; RYAN S ERIC [US]; TANG JING [US]) 21 December 2007 (2007-12-21) page 3, line 3 - page 5, line 6 page 6, line 8 - line 11 page 9, line 26 - page 19, line 29 page 22, line 7 - line 32; figures -/	1-10

X Further documents are listed in the continuation of Box C.	X 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 document but published on or after the international filling 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 filling 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 28 May 2009	Date of mailing of the international search report 11/11/2009 Authorized officer
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Nistor, Loredana

INTERNATIONAL SEARCH REPORT

International application No
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	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 564 087 B1 (PITRIS CONSTANTINOS [US] ET AL) 13 May 2003 (2003-05-13) column 2, line 19 - column 3, line 55 column 5, line 30 - column 11, line 59 column 22, line 8 - column 23, line 66; figures	1,2,4-10
X	WO 2007/083310 A (DUNE MEDICAL DEVICES LTD [IL]; HASHIMSHONY DAN [IL]; COHEN GIL [IL]) 26 July 2007 (2007-07-26)	1-4,8,9
Y	page 2, line 10 - line 30 page 6, line 13 - page 9, line 4 page 10, line 9 - page 11, line 13 page 13, line 12 - page 14, line 16 page 17, line 18 - page 18, line 13 page 19, line 5 - line 19 page 27, line 28 - page 29, line 14; figures 1,3~5,9,14	5-7
A	WO 03/020119 A (BIOLUMINATE INC [US]; HULAR RICHARD [US]; DA SILVA LUIZ [US];	1
Υ .	CHASE CH) 13 March 2003 (2003-03-13) paragraph [0039] - paragraph [0061]; figures	5-7
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International application No. PCT/IB2009/050793

INTERNATIONAL SEARCH REPORT

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:
Claims Nos.: 14 because they relate to subject matter not required to be searched by this Authority, namely: Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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:
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
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 reportcovers 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.: see additional sheet(s)
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

A system for integrated guidance for positioning a biopsy device, comprising a tracking device, an analyze device with an optical detector, the system further comprising a biopsy device adapted to be traced by the tracking device and having the optical detector integrated in its tip portion.

2. claims: 11-13

A biopsy device comprising a position sensor capable of providing information of the position of the biopsy device and an optical fiber integrated in the tip portion of the biopsy device, capable of emitting and receiving of light.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2009/050793

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2005154277	A1	14-07-2005	NONE			
WO 2007147058	Α	21-12-2007	EP US	2029213 2008125634		04-03-2009 29-05-2008
US 6564087	B1	13-05-2003	NONE			,
WO 2007083310	Α	26-07-2007	NONE			
WO 03020119	A	13-03-2003	AU CA EP JP US US	2002326814 2459490 1432350 2005501586 2005261568 2008306391 2003045798	A1 A2 T A1 A1	18-03-2003 13-03-2003 30-06-2004 20-01-2005 24-11-2005 11-12-2008 06-03-2003