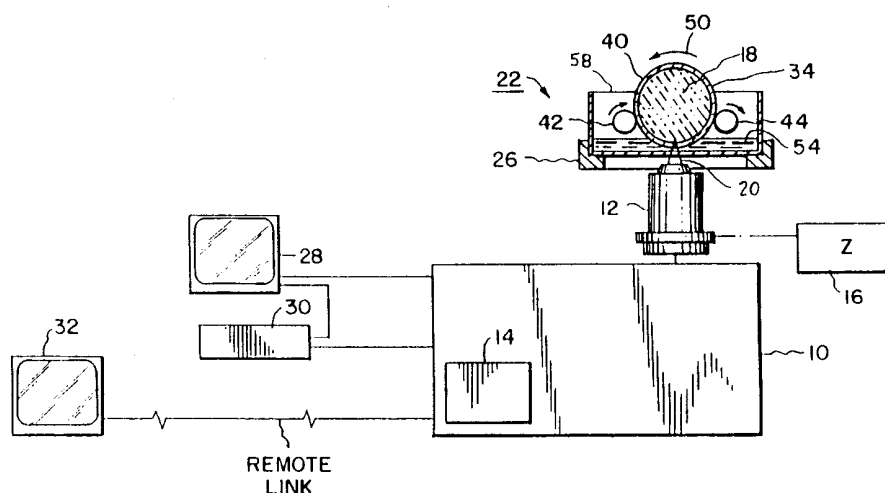




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<p>(21) International Application Number: PCT/US99/20997</p> <p>(22) International Filing Date: 13 September 1999 (13.09.99)</p> <p>(30) Priority Data: 60/100,179 14 September 1998 (14.09.98) US</p> <p>(71) Applicant (for all designated States except US): LUCID, INC. [US/US]; 235 Middle Road, Henrietta, NY 14467 (US).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): ZAVISLAN, James, M. [US/US]; 5 Wandering Trail, Pittsford, NY 14534 (US). GREENWALD, Roger, J. [US/US]; 16787 Ridge Road, Holley, NY 14470 (US).</p> <p>(74) Agent: LUKACHER, Kenneth, J.; Harris Beach & Wilcox, LLP, The Granite Building, 130 East Main Street, Rochester, NY 14604-1687 (US).</p>	<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i></p> <p>(88) Date of publication of the international search report: 21 September 2000 (21.09.00)</p>	

(54) Title: IMAGING OF SURGICAL BIOPSIES



(57) Abstract

In order to determine, rapidly and without the delay required by conventional tissue preparation techniques for pathological examination (freezing, sectioning, staining, etc.), whether an excision, which may be a biopsy sample, is representative of the morphology of interest of whether an excisional biopsy in which the tissue taken completely removes the abnormality is, in either case, the tissue which is desired to be excised, the tissue specimen (18) is encapsulated, preferably as part of the biopsy procedure. The encapsulated tissue is contained in an optically transparent cassette (34). The cassette (34) or an endcap (38) enclosing the cassette is marked with a fiducial (40) indicating and corresponding to the location of the excision on the patient's body. An image, which is preferably a representation of a surface of the tissue specimen and the vertical section(s) area of the tissue internal of the specimen and adjacent to a surface thereof, is obtained by means of an electro-optical imaging system (10), preferably a confocal laser scanning microscope. The cassette is moved, preferably in a stage (22) which rotates the cassette while translating it, so that the head (12) of the confocal microscope (its objective lens) provides a linear scan in a direction perpendicular to the wall of the cassette (also perpendicular to the surface of the tissue encapsulated in the cassette). The display (28) from the microscope indicates the morphology at and in proximity to the surface of the specimen as well as the location thereof. The pathologist and the surgeon is thereby provided with information concerning the specimen and whether the entire abnormality desired to be removed has indeed been removed and/or whether the biopsy is representative of the body region of interest in the case of a biopsy sample.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/20997

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :A61B 5/05; G01N 21/64

US CL :600/407, 414, 415, 476; 356/368; 250/216, 234, 461.2

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)

U.S. : 600/407, 414, 415, 421, 476; 356/368; 250/216, 234, 461.1, 461.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
USPTO APS EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,E	US 5,978,695 A (GREENWALD et al) 02 November 1999 (02-11-1999), see entire patent.	1, 24
A,E	US 6,032,071 A (BINDER) 29 February 2000 (29-02-2000), see entire patent.	1-29
A,E	US 6,014,451 A (BERRY et al) 11 January 2000 (11-01-2000), see entire patent.	1-29
A,E	US 5,995,867 A (ZAVISLAN et al) 30 November 1999 (30-11-1999), see entire patent.	1-29

Further documents are listed in the continuation of Box C.

See patent family annex.

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