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[Continued on next page]

(54) Title: NEEDLE ARRAY ASSEMBLY AND METHOD FOR DELIVERING THERAPEUTIC AGENTS

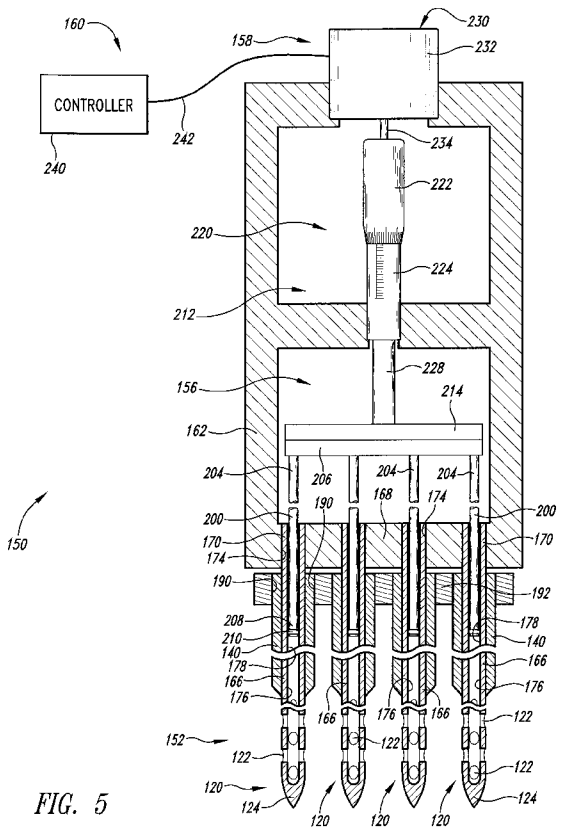

FIG. 5

(57) Abstract: A fluid delivery device includes an array of needles, each in fluid communication with a respective reservoir. Respective actuators are coupled so as to be operable to drive fluid from the reservoirs via needle ports. Each needle can have a plurality of ports, and the ports can be arranged to deliver a substantially equal amount of fluid at any given location along its length. A driver is coupled to the actuators to selectively control the rate, volume, and direction of flow of fluid through the needles. The device can simultaneously deliver a plurality of fluid agents along respective axes in solid tissue in vivo. If thereafter resected, the tissue can be sectioned for evaluation of an effect of each agent on the tissue, and based on the evaluation, candidate agents selected or deselected for clinical trials or therapy, and subjects selected or deselected for clinical trials or therapeutic treatment.

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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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

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— *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:
28 May 2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/073212

A. CLASSIFICATION OF SUBJECT MATTER

A61M 5/32(2006.01)i, A61M 31/00(2006.01)i

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 A61M 5/32, A61M 31/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility Models since 1975
Japanese Utility models and applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKIPASS(KIPO internal), DELPHION, "needle, actuator, reservoir and similar terms"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US6428504B1 (MAJID L. RIAZIAT et al.) 6 August 2002 See Figs. 1, 7A~C; claims.	1-7
A	US20030060780A1 (HANG CHUNG SHU) 27 March 2003 See the whole document.	1-23, 82
A	US7226439B2 (MARK R. PARAUSNITZ et al.) 5 Jung 2007 See the whole document.	1-23, 82
A	US2007021717A1 (JONATHAN B. GABEL et al.) 25 January 2007 See the whole document.	1-23, 82

☐ 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 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	Date of mailing of the international search report
02 APRIL 2009 (02.04.2009)	**06 APRIL 2009 (06.04.2009)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM Jung Tae Telephone No. 82-42-481-5594

Form PCT/ISA/210 (second sheet) (July 2008)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/073212

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.: 24-81, 83-103
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 24-81, 83-103 pertain to a method for treatment of the human by therapy and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.

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 Extra Sheet

1. ☒ As all required addtional 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 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.

The separate inventions/groups of inventions are:

Invention 1: A device for delivery of a solid tissue (Claims 1-8).
Invention 2: A device for delivery of a solid tissue (Claims 9-23).
Invention 3: A fluid agent-delivering device (Claim 82).

The only common technical feature between inventions 1~3 is a device comprising a plurality of needles, a plurality of reservoirs, and a plurality of plunger(or actuator).

However this feature lacks novelty and/or inventive step with respect to the following document.

D1: US6428504B1(MAJID L. RIAZIAT et al.) 06 August 2002.

Thus there is no technical relationship left over the prior art among the claimed inventions, leaving the claims without a single general inventive concept.

Hence there is lack of unity"a posteriori"(PCT Rules 13.1 and 13.2)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2008/073212

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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