

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 March 2009 (19.03.2009)

PCT

(10) International Publication Number
WO 2009/035562 A3

(51) International Patent Classification:

A61K 9/00 (2006.01) A61F 2/02 (2006.01)
A61M 5/14 (2006.01) A61F 9/00 (2006.01)

California 94117 (US). REICH, Cary J. [US/US]; 114
Ayala Ct., Los Gatos, California 95032 (US).

(21) International Application Number:

PCT/US2008/010487

(74) Agents: NELSON, Albin James et al.; Schwegman,
Lundberg & Woessner, PA, P.O. Box 2938, Minneapolis,
MN 55402 (US).

(22) International Filing Date:

5 September 2008 (05.09.2008)

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE,
EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID,
IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK,
LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW,
MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
ZW.

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/970,699 7 September 2007 (07.09.2007) US
60/970,709 7 September 2007 (07.09.2007) US
60/970,820 7 September 2007 (07.09.2007) US
61/049,317 30 April 2008 (30.04.2008) US

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

(71) Applicant (for all designated States except US): QLT
PLUG DELIVERY, INC [US/US]; 191 Jefferson Drive,
Menlo Park, California 94025 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): UTKHEDE, Deep-
ank [CA/CA]; 18263 68th Avenue, Surrey, British Co-
lumbia V3S 9C6 (CA). SHIMIZU, Robert W. [US/US];
26 Danforth Avenue, Laguna Niguel, California 92677
(US). JAIN, Rachna [US/US]; 294 Jurgens Drive, Mil-
pitas, California 95035 (US). BOYD, Stephen [US/US];
23809 Hayes Avenue, Murrieta, California 92562 (US).
GIFFORD, Hanson S. [US/US]; 3180 Woodside Road,
Woodside, California 94062 (US). DE JUAN JR., Eu-
gene [US/US]; 276 Edgewood Avenue, San Francisco,

Published:

— with international search report
— 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:
2 July 2009

(54) Title: DRUG CORES FOR SUSTAINED RELEASE OF THERAPEUTIC AGENTS

(57) Abstract: A solid drug core insert can be manufactured by injecting a liquid mixture comprising a therapeutic agent and a matrix precursor into a sheath body. The injection can be conducted at subambient temperatures. The mixture is cured to form a solid drug-matrix core. The therapeutic agent can be a liquid at about room temperature that forms a dispersion of droplets in the matrix material. A surface of the solid drug core is exposed, for example by cutting the tube, and the exposed surface of the solid drug core releases therapeutic quantities of the therapeutic agent when implanted into the patient. In some embodiments, the insert body inhibits release of the therapeutic agent, for example with a material substantially impermeable to the therapeutic agent, such that the therapeutic quantities are released through the exposed surface, thereby avoiding release of the therapeutic agent to non-target tissues.



WO 2009/035562 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/010487

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61K9/00 A61M5/14 A61F2/02 A61F9/00

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)

A61K

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, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/022242 A (SMART DRUG SYSTEMS INC.) 20 March 2003 (2003-03-20) the whole document	1-299
A	WO 02/058667 A (BAUSCH & LOMB INC.) 1 August 2002 (2002-08-01) the whole document	1-299
A	US 2006/020248 A1 (A. PRESCOTT) 26 January 2006 (2006-01-26) the whole document	1-299
X	US 5 283 063 A (J. FREEMAN) 1 February 1994 (1994-02-01) the whole document	1-299
	-/--	

 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 document 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

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

15 May 2009

Date of mailing of the international search report

25/05/2009

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

Authorized officer

Glikman, J

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/010487

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2006/057859 A (THERAKINE CORP.) 1 June 2006 (2006-06-01) the whole document -----	1-299
X,P	WO 2007/115259 A (FORSIGHT LABS, LLC) 11 October 2007 (2007-10-11) paragraph [0178]; claims 1-47 -----	1-299
X,P	WO 2008/094989 A (ALCON RESEARCH, LTD) 7 August 2008 (2008-08-07) the whole document -----	1-299
L,P	US 2007/243230 A1 (E. DE JUAN ET AL.) 18 October 2007 (2007-10-18) cited in the application the whole document -----	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/010487

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.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 273-278 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the devices.
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:

1. As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable 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.:

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/010487

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03022242	A	20-03-2003	BR 0212052 A	17-08-2004
			CA 2452194 A1	20-03-2003
			CN 1541090 A	27-10-2004
			EP 1424994 A1	09-06-2004
			JP 2005505557 T	24-02-2005
			NZ 530550 A	26-11-2004
			US 2004234572 A1	25-11-2004
WO 02058667	A	01-08-2002	CA 2433528 A1	01-08-2002
			EP 1365738 A2	03-12-2003
			JP 2004520900 T	15-07-2004
US 2006020248	A1	26-01-2006	NONE	
US 5283063	A	01-02-1994	NONE	
WO 2006057859	A	01-06-2006	AU 2005309854 A1	01-06-2006
			BR PI0518582 A2	25-11-2008
			CA 2588449 A1	01-06-2006
			CN 101132800 A	27-02-2008
			EP 1827462 A1	05-09-2007
			JP 2008521489 T	26-06-2008
			KR 20080016780 A	22-02-2008
WO 2007115259	A	11-10-2007	AU 2007234445 A1	11-10-2007
			AU 2007234447 A1	11-10-2007
			CA 2648066 A1	11-10-2007
			CA 2648421 A1	11-10-2007
			EP 2010096 A2	07-01-2009
			EP 2004172 A2	24-12-2008
			KR 20090006153 A	14-01-2009
			US 2009092654 A1	09-04-2009
			US 2007269487 A1	22-11-2007
			WO 2007115261 A2	11-10-2007
			WO 2008094989	A
US 2008181930 A1	31-07-2008			
UY 30883 A1	31-05-2008			
US 2007243230	A1	18-10-2007	NONE	