(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 5 October 2006 (05.10.2006)

(10) International Publication Number WO 2006/104976 A3

(51) International Patent Classification:

A61L 31/16 (2006.01)

A61L 31/10 (2006.01)

A61L 31/08 (2006.01)

(21) International Application Number:

PCT/US2006/011028

(22) International Filing Date: 27 March 2006 (27.03.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/665,139 25 March 2005 (25.03.2005) US 60/720,808 27 September 2005 (27.09.2005) US

(71) Applicant (for all designated States except US): LAB-COAT, LTD. [IE/IE]; Unit 4, Ballybrit Business Park, Galway (IE).

- (71) Applicant and
- (72) Inventor: ROSENTHAL, Arthur [US/US]; 9 Bacon Street, Wellesley, Massachusetts 02482 (US).
- (74) Agent: SORKIN, Paul; Rissman Jobse Hendricks & Oliverio, LLP, Suite 800, One State Street, Boston, Massachusetts 02109 (US).
- (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, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

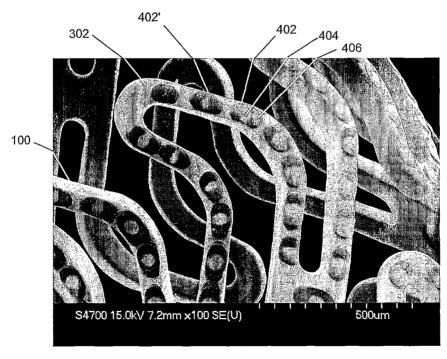
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, 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).

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: 5 April 2007

[Continued on next page]

(54) Title: CONTROLLED DRUG RELEASE COATING FOR MEDICAL DEVICES



(57) Abstract: In one embodiment of the present invention a coating topology, or engineered surface architecture that may be referred to as a microdroplet deposited engineered surface architecture is provided. A plurality of drops are placed on the stent with the purpose, of building up individual units of coating material on the outer stent surface. This architecture results in a coating that uses less material, i.e., polymer, solvent, medicine, while at the same time providing for better, and determinable, drug kinetics, approaching 100% delivery and better mechanical operation of the coating binding to the stent.

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/US2006/011028

Relevant to claim No.

A. CLASSIFICATION OF SUBJECT MATTER INV. A61L31/16 A61L31/08

C. DOCUMENTS CONSIDERED TO BE RELEVANT

A61L31/10

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

B. FIELDS SEARCHED

Category*

Minimum documentation searched (classification system followed by classification symbols) A61L

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, WPI Data, COMPENDEX, MEDLINE, EMBASE, BIOSIS

Citation of document, with indication, where appropriate, of the relevant passages

X	WO 2004/037443 A1 (MEDTRONIC VASO [US]; BRISTER MARK [US]) 6 May 2004 (2004-05-06) paragraphs [0020], [0033]; figur	1-68 ·								
X	US 6 395 326 B1 (CASTRO DANIEL [US 6 395 326 B1 (CASTRO DANIEL [US 28 May 2002 (2002-05-28) column 2, line 64 - column 3, line 10 - line 67 column 19, line 4 - line 15; figures 8H,10H,11B,12a,13F-13H	1-68								
X	US 2003/181973 A1 (SAHOTA HARVING 25 September 2003 (2003-09-25) paragraphs [0077], [0079], [009 figures 7A-7E.7H,7J		1-68							
X Furti	X Further documents are listed in the continuation of Box C. X See patent family annex.									
"A" docume consic filing c filing c vhich citation of docume other r P" docume r doc	ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another n or other special reason (as specified) ent referring to an oral disclosure, use, exhibition or	 *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								
1	1 December 2006	22/01/2007								
Name and r	mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Pilling, Stephen								

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/011028

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT			
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2003/054090 A1 (HANSEN HENRIK [IE]) 20 March 2003 (2003-03-20) figure 4; example 1	1-68		
X	US 6 558 733 B1 (HOSSAINY SYED F A [US] ET AL) 6 May 2003 (2003-05-06) column 5, line 36 - column 6, line 37; figures 4a,4b,7a	1-68		
X	WO 01/87374 A (CORDIS CORP [US]) 22 November 2001 (2001-11-22) page 24, line 1 - line 11; figure 3	1-68		
A	US 2003/207019 A1 (SHEKALIM AVRAHAM [IL] ET AL) 6 November 2003 (2003-11-06) cited in the application the whole document	1–68		

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2006/011028

	atent document d in search report		Publication date		Patent family member(s)		Publication date	
. WO	2004037443	A1	06-05-2004	AU EP	2003279962 1569762		13-05-2004 07-09-2005	
US	6395326	B1	28-05-2002	US	6616765	B1	09-09-2003	
US	2003181973	A1	25-09-2003	US US	2005149163 2005147644	•	07-07-2005 07-07-2005	
US	2003054090	A1	20-03-2003	CA EP JP WO US	2460561 1427456 2005503909 03024497 2004081745	A1 T A1	27-03-2003 16-06-2004 10-02-2005 27-03-2003 29-04-2004	
US	6558733	B1	06-05-2003	NONE				
WO	0187374	A	22-11-2001	AU CA EP JP MX	6157901 2408752 1280569 2003533495 PA02011101	A1 A1 T	26-11-2001 22-11-2001 05-02-2003 11-11-2003 24-06-2003	
US	2003207019	A1	06-11-2003	AU CA EP WO US US	2003228079 2485069 1499450 03092909 2003207022 2004058084 2004076747	A1 A1 A1 A1 A1	17-11-2003 13-11-2003 26-01-2005 13-11-2003 06-11-2003 25-03-2004 22-04-2004	