(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(10) International Publication Number WO 2009/117193 A3

(43) International Publication Date 24 September 2009 (24.09.2009)

(51) International Patent Classification: A61F 2/82 (2006.01)

(21) International Application Number:

PCT/US2009/033862

(22) International Filing Date:

12 February 2009 (12.02.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/051,304

19 March 2008 (19.03.2008)

US

- (71) Applicant (for all designated States except US): BOSTON SCIENTIFIC SCIMED, INC. [US/US]; One Scimed Place, Maple Grove, Minnesota 55311 (US).
- (72) Inventor: SMITH, Scott R.; 6950 County Road 10, Published: Chaska, Minnesota 55318 (US).
- (74) Agent: RYAN-LINDQUIST, Lisa; Suite 400, 6640 Shady Oak Road, Eden Prairie, Minnesota 55344 (US).
- (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,

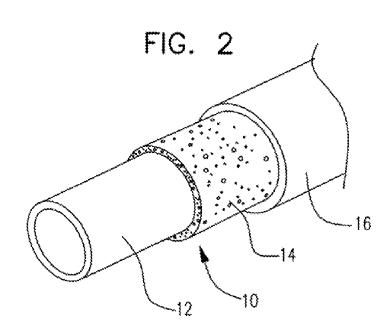
EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, 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).

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- (88) Date of publication of the international search report:

12 November 2009

(54) Title: DRUG ELUTING STENT AND METHOD OF MAKING THE SAME



(57) Abstract: A drug eluting stent comprising a multilayer tubular structure which includes at least one intermediate layer (14) having reservoirs therein for deposition of a drug, the intermediate layer eluting drug in a lateral direction, and methods of making the same.



INTERNATIONAL SEARCH REPORT

International application No
PCT/IIS2000/033862

PCT/US2009/033862 A. CLASSIFICATION OF SUBJECT MATTER INV. A61F2/82 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) A61F 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. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. US 2004/000046 A1 (STINSON JONATHAN S X 1 [US]) 1 January 2004 (2004-01-01) the whole document 2-12 WO 2005/030094 A (ANGIOTECH BIOCOATINGS X 1 CORP [US]; WHITBOURNE RICHARD J [US]; CHAMBERLAI) 7 April 2005 (2005-04-07) Y page 14 - page 28; claims 2-12 WO 02/49536 A (NICAST LTD [IL]; DUBSON X 1 ALEXANDER [IL]; BAR ELI [IL]) 27 June 2002 (2002-06-27) Y the whole document 2-12 X US 5 735 897 A (BUIRGE ANDREW W [US]) 1 7 April 1998 (1998-04-07) column 2 - column 5 . 2-12 -/--X Further documents are listed in the continuation of Box C. See patent family annex. Special categories of cited documents: *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 "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 "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 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) "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 docu-"O" document referring to an oral disclosure, use, exhibition or other means ments, such combination being obvious to a person skilled *P* document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 11 May 2009 25/09/2009 Name and mailing address of the ISA/ Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Riiswiik Tel. (+31-70) 340-2040

Fax: (+31-70) 340-3016

2

Serra i Verdaguer, J

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/033862

	ation). DOCUMENTS CONSIDERED TO BE RELEVANT	
ategory*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
,	US 2005/271701 A1 (COTTONE ROBERT J JR [US] ET AL) 8 December 2005 (2005-12-08) the whole document	1-12
(WO 2006/065665 A (ROBERT HUNT CARPENTER DVM PC [US]; CARPENTER ROBERT HUNT [US]; CARPENT) 22 June 2006 (2006-06-22) paragraph [0059] - paragraph [0076]; claims; figures	1-12
, .	WO 2004/091444 A (COOK INC [US]; FISCHER FRANK J JR [US]) 28 October 2004 (2004-10-28) abstract; claims; figures	1
(US 2006/093643 A1 (STENZEL ERIC B [IE]) 4 May 2006 (2006-05-04) the whole document	1
•		
•		
•		
:		
,		

International application No. PCT/US2009/033862

INTERNATIONAL SEARCH REPORT

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: 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 additional sheet
because they relate to subject matter not required to be searched by this Authority, namely: 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 additional sheet
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 additional sheet
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 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable.
This International Searching Authority found multiple inventions in this international application, as follows: see additional sheet 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable
see additional sheet 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable
As all required additional search fees were timely paid by the applicant, this international search report covers all searchable.
1. 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)
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-12

A drug delivery stent comprising an intermediate layer

2. claims: 13-22

A drug delivery stent comprising reservoirs

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2009/033862

				'	.,	777, 000002
Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2004000046	A1	01-01-2004	AU	2003280116	A1	19-01-2004
•		•	WO	2004002369	A1	08-01-2004
			US	2005150096		14-07-2005
W0 2005030094		07-04-2005	 CA	2538669	 Λ1	07-04-2005
NO 20050554	^	07 04 2005	EP	1680047		19-07-2006
			JP	2007505704		15-03-2007
WO 0249536	Α	27-06-2002	AU	1634002		01-07-2002
			AU	1634202		01-07-2002
			AU	2249402		01-07-2002
			AU	2002222494		19-02-2009
			CA	2432156		27-06-2002
			CA	2432159		27-06-2002
			CA	2432164		27-06-2002
			CN	1489513		14-04-2004
			CN	1599582		23-03-2005
			CN	1635861		06-07-2005
			EP	1578306		28-09-2005
			EP	1353606		22-10-2003
			EP	1355677		29-10-2003
			WO	0249678		27-06-2002
			WO		A2	27-06-2002
			JP		Τ.	28-10-2004
			JP	4145143	B2	03-09-2008
			JP		T	30-09-2004
			JP	2005507464	T	17-03-2005
			MX	PA03005551	A	24-10-2003
			MX	PA03005552	A	24-10-2003
			MX	PA03005553		23-08-2004
			US	2004096532		20-05-2004
			US	2002084178	Δ1	04-07-2002
		•	US	2002004170		0.0.200
 US 5735897	Α	07-04-1998	NONE			
	A A1	07-04-1998				
US 2005271701	A1	08-12-2005	NONE NONE			
US 5735897 US 2005271701 WO 2006065665	A1 A	08-12-2005	NONE NONE US	2008140172	A1	12-06-2008
US 2005271701	A1	08-12-2005	NONE NONE		A1	
US 2005271701 	A1 A	08-12-2005	NONE NONE US EP	2008140172 / 1610835 / 2586854 /	A1 A2	12-06-2008
US 2005271701 WO 2006065665 WO 2004091444	A1 A	08-12-2005 22-06-2006 28-10-2004	NONE NONE US EP CA EP	2008140172 / 1610835 / 2586854 / 1807130 /	A1 A2 A1 A2	12-06-2008
US 2005271701 WO 2006065665 WO 2004091444	A1 A	08-12-2005 22-06-2006 28-10-2004	NONE NONE US EP	2008140172 / 1610835 / 2586854 /	A1 A2 A1 A2 A1 A2	12-06-2008 04-01-2006 18-05-2006