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(71) Applicant (for all designated States except US):

MEDTRONIC, INC. [US/US]; 710 Medtronic Parkway
MS LC340, Minneapolis, Minnesota 55432 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ZHANG, Jianbin
[US/US]; 1034 27th Avenue Southeast, Apartment C,
Minneapolis, Minnesota 55414 (US). LYU, SuPing [US/
US]; 6625 Garland Lane North, Maple Grove, Minnesota
55311 (US). SCHLEY, James, L. [US/US]; 2185 128th
Lane, Coon Rapids, Minnesota 55448 (US).

(74) Agents: ACKLEY, James, H. et al.; 710 Medtronic
Parkway MS LC340, Minneapolis, Minnesota 55432
(US).

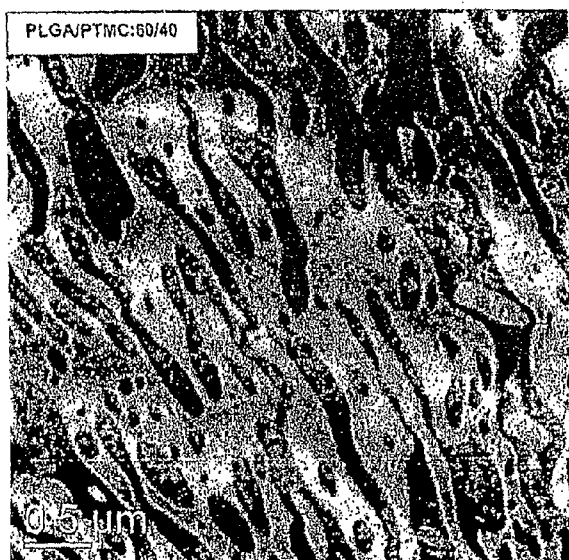
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(54) Title: MEDICAL DEVICES AND METHODS INCLUDING BLENDS OF BIODEGRADABLE POLYMERS

D



(57) Abstract: Implantable medical devices and methods including blends of biodegradable polymers are disclosed herein. The polymer blends include a continuous phase in which the polymer chains are oriented along an axis. Such polymer blends can exhibit properties such as improved toughness that can be desirable for use in medical devices.

FIG. 7D



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ADD.

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

B. FIELDS SEARCHED

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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)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 837 042 A2 (CORDIS CORP [US]) 26 September 2007 (2007-09-26) column 22, paragraph 81 column 10, paragraph 36 - paragraph 37 column 12, paragraph 44 - column 13, paragraph 46 column 21, paragraph 79 -----	1-55
X	WO 2007/020432 A2 (SMITH & NEPHEW [GB]; BROWN MALCOLM [GB]; HALL MICHAEL ANDREW [GB]; ROS) 22 February 2007 (2007-02-22) page 3, line 14 - line 21 page 4, line 17 - line 30 page 5, line 22 - page 6, line 23 page 7, line 19 - page 8, line 8 page 9, line 22 - page 10, line 11 ----- -/-	1-55



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European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Menidjel, Razik

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/01426 A1 (SMITH & NEPHEW [GB]; BROWN MALCOLM W R [GB]) 13 January 2000 (2000-01-13) page 4, line 4 - page 5, line 30 page 6, line 1 - page 7, line 12 claims 1-17 -----	1-55
X	WO 2007/092417 A1 (TEPHA INC [US]; RIZK SAID [US]; MARTIN DAVID P [US]; HO KICHERL [US];) 16 August 2007 (2007-08-16) page 3, paragraph 1 - page 4, last paragraph page 5, paragraph 2 - page 6, paragraph 1 page 7, paragraph 2 - page 8, paragraph 1 examples 1-4 claims 1-6 -----	1-55
X	WO 2007/134222 A2 (CORDIS CORP [US]; BURGERMEISTER ROBERT [US]; DAVE VIPUL BHUPENDRA [US]) 22 November 2007 (2007-11-22) page 26, line 21 - page 28, line 16 page 29, line 21 - page 30, line 14 page 35, line 23 - page 36, line 27 claims 1-42 -----	1-3, 12-42, 46, 48-50, 52-55

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1837042	A2	26-09-2007	CA 2579193 A1 24-08-2007
			JP 2007222635 A 06-09-2007
			US 2007203569 A1 30-08-2007

WO 2007020432	A2	22-02-2007	AU 2006281248 A1 22-02-2007
			CA 2619571 A1 22-02-2007
			EP 1922091 A2 21-05-2008
			JP 2009504929 T 05-02-2009
			US 2008305144 A1 11-12-2008

WO 0001426	A1	13-01-2000	AT 265239 T 15-05-2004
			AU 740835 B2 15-11-2001
			AU 4636299 A 24-01-2000
			CA 2335637 A1 13-01-2000
			DE 69916839 D1 03-06-2004
			DE 69916839 T2 14-04-2005
			EP 1094850 A1 02-05-2001
			JP 2002519154 T 02-07-2002
			US 6583232 B1 24-06-2003

WO 2007092417	A1	16-08-2007	AU 2007212501 A1 16-08-2007
			CA 2640750 A1 16-08-2007
			EP 1993621 A1 26-11-2008
			EP 1991287 A2 19-11-2008
			JP 2009525812 T 16-07-2009
			US 2007182041 A1 09-08-2007
			US 2007185561 A1 09-08-2007
			WO 2007092418 A2 16-08-2007

WO 2007134222	A2	22-11-2007	AU 2007249300 A1 22-11-2007
			CA 2652753 A1 22-11-2007
			EP 2020967 A2 11-02-2009
			US 2008132995 A1 05-06-2008
