

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 December 2004 (02.12.2004)

PCT

(10) International Publication Number
WO 2004/103166 A3

(51) International Patent Classification⁷: **A61L 17/00**

(21) International Application Number:
PCT/US2004/016364

(22) International Filing Date: 21 May 2004 (21.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/472,797 21 May 2003 (21.05.2003) US

(71) Applicant and

(72) Inventor: MANDELBAUM, Jon [US/US]; 6450 Harting
Overlook, Indianapolis, Indiana 46237 (US).

(74) Agent: KNUTH, Randall; 4921 DeSoto Drive, Fort
Wayne, Indiana 46815 (US).

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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

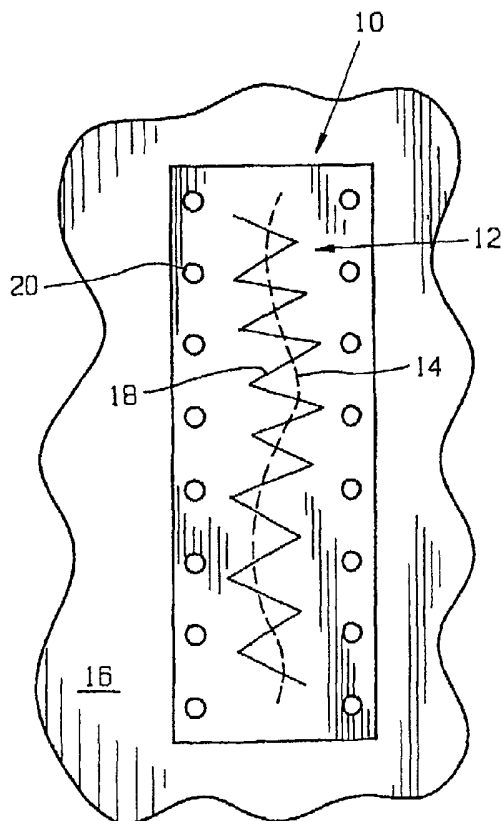
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC,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

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

Published:
— with international search report

[Continued on next page]

(54) Title: SURGICAL METHOD AND COMPOSITION UTILIZING SUBMUCOSAL TISSUE TO PREVENT INCISIONAL
HERNIAS



(57) Abstract: A small intestine submucosa mesh (10) is adapted for use in surgical abdominal closure routines. The submucosa mesh (10) is incorporated into the normal surgical protocol for abdominal closure procedures. The submucosa mesh (10) is applied to the abdominal incision area (12) and maintains and enhances the stability and integrity of the abdominal wall closure, thereby preventing the onset or occurrence of incisional hernias. The submucosa mesh (10) can also be applied to surgical closure procedures involving treatment of a hernia defect, such as an incisional hernia or other non-incisional hernia. The submucosa construct can also be adapted for use as a suturing component or bioretention suture. The submucosa construct can be adapted for use as part of a surgical strategy to facilitate wound healing, regeneration, reconstruction, and replacement of anatomical structures, such as tissues and organs.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.

(88) Date of publication of the international search report:

11 August 2005

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/16364

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61L 17/00

US CL : 606/229

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)

U.S. : 606/229,139-158,222-228,230-233

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2,748,774 (NOVAK) 05 JUNE 1956 see col. 1 lines 17-32	7,8,13 ----- 6
X --- Y	US 6,165,202 A (Kokish, et al.) 26 DECEMBER 2000 see col. 2 lines 1-12; col. 6 lines 12-17	7,8 ----- 6
X --- Y	US 5,755,791 A (WHITSON, et al.) 26 MAY 1998 see col. 1 lines 13-30; col. 3 lines 31-39; col. 18 lines 3-20; col. 19 lines 21-36.	1-5,7-12

☐ 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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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 documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

17 May 2005 (17.05.2005)

Date of mailing of the international search report

09 JUN 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Glenn K Dawson

Telephone No. 703-308-0858