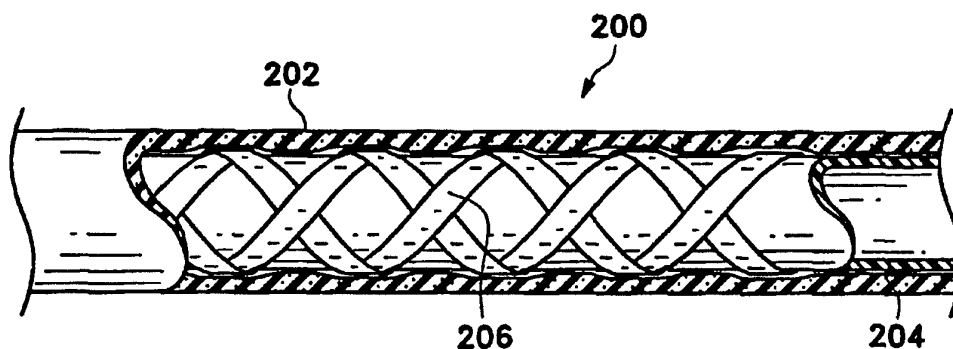




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61M 25/00		(11) International Publication Number: WO 96/33763
A3		(43) International Publication Date: 31 October 1996 (31.10.96)
(21) International Application Number: PCT/US96/05839 (22) International Filing Date: 26 April 1996 (26.04.96) (30) Priority Data: 08/430,445 28 April 1995 (28.04.95) US 08/521,671 31 August 1995 (31.08.95) US (71) Applicant: TARGET THERAPEUTICS, INC. [US/US]; 47201 Lakeview Boulevard, Fremont, CA 94537-5120 (US). (72) Inventors: SAMSON, Gene; 645 Vasona Street, Milpitas, CA 95035 (US). CHEE, U., Hiram; 127 Dolton Avenue, San Carlos, CA 94030 (US). NGUYEN, Kim; 1193 Fargate Circle, San Jose, CA 95131 (US). SNYDER, Edward, J.; 725 Azule Avenue, San Jose, CA 95123 (US). ENGELSON, Erik, T.; 401 Encinal Avenue, Menlo Park, CA 94025 (US). (74) Agents: WHEELLOCK, E., Thomas et al.; Morrison & Foerster L.L.P., 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).		(81) Designated States: AU, CA, JP, KR, NO, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 27 December 1996 (27.12.96)

(54) Title: HIGH PERFORMANCE BRAIDED CATHETER



(57) Abstract

This is a catheter assembly and a section of that catheter assembly. That catheter assembly may be used in accessing a tissue target within the body, typically a target which is accessible through the vascular system. Central to the invention is the use of a braided metallic reinforcing member, typically of superelastic alloy ribbon, situated within the catheter body in such a way to create a catheter having an exceptionally thin wall, controlled stiffness, high resistance to kinking, and complete recovery *in vivo* from kinking situations. The braid may have a single pitch or may vary in pitch along the axis of the catheter or catheter section. The braided ribbon reinforcing member typically is placed between a flexible outer tubing member and an inner tubing member to produce a catheter section which is very flexible but highly kink resistant. The catheter sections made according to this invention may be used alone or in conjunction with other catheter sections either made using the concepts shown herein or made in other ways. The more proximal sections of the catheter assembly are often substantially stiffer than the more distal sections due to the presence of stiff polymeric tubing or metallic tubing or composite materials in the stiffer section.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 96/05839

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61M25/00

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)
IPC 6 A61M

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,5 019 057 (TRUCKAI) 28 May 1991	1,13,21, 26
	see column 1, line 53 - column 2, line 37	
	see column 3, line 47 - column 4, line 43	
Y	see figures 1-3	5,6, 14-19, 22-24, 27,30,48
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- * & * document member of the same patent family

Date of the actual completion of the international search

29 October 1996

Date of mailing of the international search report

08. 11. 96

Name and 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

Schönleben, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 96/05839

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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[illegible]

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 96/05839

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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:
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims: 1-30, 31-41, 42-50
2. Claims: 51-77, 78-95

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 fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers 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.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 96/05839

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