

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 11813-708.600	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 13/30249	International filing date (<i>day/month/year</i>) 11 March 2013 (11.03.2013)	(Earliest) Priority Date (<i>day/month/year</i>) 09 March 2012 (09.03.2012)	
Applicant SI-BONE INC.			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed.

a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (see Box No. II).

3. **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1A

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 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:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I: claims 1-9, 29, 30 directed to a soft tissue protector system

Group II: claims 10-14 directed to an expandable dilator

Group III: claims 15-20 directed to a delivery sleeve

Group IV: claims 21-25, 31-35 directed to a dilator system and corresponding method of use

Group V: claims 26-28 directed to a quick connect system

--- see continuation sheet ---

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 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 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.:
1-9, 29-30

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.

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61B 1/32 (2013.01) USPC - 600/205 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) USPC: 600/205 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 600/184, 201, 210, 214; 606/1, 198 IPC: A61B1/00; A61M29/00, 29/02(keyword limited; terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase; Google Patents; Google Search Terms Used: insert*, implant, prosth*, fluid, liquid, channel%, lumen%, port%, shaft, plunger%, piston%, pusher%, simultaneous*, concurrent*, deploy*, releas*, inject*, connect*, attach*, dual, two, second, bone morphogenetic protein%, BMP, ...		
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 2007/0233146 A1 (HENNIGES et al) 04 October 2007 (04.10.2007) fig 9, 10, 11, 12C, 25, para [0064], [0065], [0068], [0073], [0094]	1-2, 6-8, 29-30 ----- 3-5, 9
X ----- Y	US 5,197,961 A (CASTLE) 30 March 1993 (30.03.1993) fig 1, 2, 3, col 2, ln 28-50	1 ----- 3-5
Y	US 2003/0083688 A1 (SIMONSON) 1 May 2003 (01.05.2003) para [0033]-[0037]	3-5
Y	US 2011/0046737 A1 (TEISEN) 24 February 2011 (24.02.2011) para [0114]	3-5
Y	US 2001/0046518 A1 (SAWHNEY) 29 November 2001 (29.11.2001) para [0094]-[0096]	9
A	US 2004/0220580 A1 (JOHNSON et al) 4 November 2004 (04.11.2004) whole document	1-9, 29-30
A	US 2008/0255664 A1 (HOGENDIJK et al) 16 October 2008 (16.10.2008) whole document	1-9, 29-30
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international 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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 28 June 2013 (28.06.2013)		Date of mailing of the international search report 10 JUL 2013
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. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Continuation of Box III: Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

The groups of inventions above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Special Technical Features

The special technical feature of the Group I claims is the supply of a biologic aid through a fluid channel or port, which is not present in the claims of Groups II-V.

The special technical feature of the Group II claims is slidable wall segments allowing the body to have a compressed and uncompressed cross section, which is not present in the claims of Groups I, III-V.

The special technical feature of the Group III claims is a tapered distal portion having expandable blade portions that rotate outwards, which is not present in the claims of Groups I-II, IV-V.

The special technical feature of the Group IV claims is a guide pin with outwardly biased prongs, sequential dilators and an outer cannula with stabilizing pins, which is not present in the claims of Groups I-III, V.

The special technical feature of the Group V claims is a handle quick connect feature, which is not present in the claims of Groups I-IV.

Common Technical Features

Groups I-V share the technical feature of a cannula, dilator or longitudinal body having a distal end, a proximal end and a wall with an inner surface that defines a passage extending through the cannula, dilator or longitudinal body. This generic feature does not avoid the prior art, as evinced by US 2003/0083688 A1 to Simonson which teaches a typical example of a dilator comprising a series of cannulated dilators formed of longitudinal bodies that define a passage therethrough (para [0033], fig 2, dilators 12).

Groups II and IV further share the technical feature of an expandable dilator which expands from a compressed/contracted configuration to an expanded configuration. This generic feature does not avoid the prior art, as evinced by US 4,350,151 A to Scott which teaches a typical example of an expandable dilator which expands from a compressed configuration to an expanded configuration (col 2, ln 39-51, col 3, ln 1-20, fig 1, 6-9, dilator 10 having portions 11, 12 which start in a radially closed/compressed configuration and expand when urged apart by inner member 16).

Therefore, the listed inventions lack unity of invention under PCT Rule 13 because they do not share a same or corresponding special technical feature.