Title: A CHRONICALLY IMPLANTABLE GUIDE TUBE FOR REPEATED INTERMITTENT DELIVERY OF MATERIALS OR FLUIDS TO TARGETED TISSUE SITES

Abstract: A therapy delivery system for the intermittent delivery of biologies, chemicals, or pharmaceuticals into tissues is described. The system involves a chronically implantable guide tube having a guide cannula with a proximal and a distal end, an access port mounted on the proximal end of the guide cannula and adapted for chronic implantation into a patient, a first stop mounted near the distal end of the guide cannula and a delivery cannula insertable into the lumen of the guide cannula through the access port. The delivery cannula mechanically interacts with the first stop and is designed to prevent the delivery cannula from extending beyond a predetermined distance from the distal end of the guide cannula. A tissue-piercing tip may be attached to the distal end of the delivery cannula to penetrate tissue growth near the target site. A stylet may be used to occupy the lumen of the guide cannula when the delivery cannula is not in use.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(8) - A61M 31/00; A61M 37/00 (2008.04)
   USPC - 604/159, 117, 93.01
   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(8) - A61M 31/00; A61M 37/00 (2008.04)
   USPC - 604/159, 117, 93.01

   Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
   USPC - 604/159, 117, 93.01
   (Text Search)

   Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
   PubWEST (PGPB, USPT, USOC, EPAB, JPAB); DialogPRO (Engineering) and Google Scholar.
   Search Terms: guide tube, guide cannula, stop, implant, implantable, deliver, delivery, delivering, deliver, cannula, catheter, tip, sharp,
   piercing, penetrat, pierc, brain, mapping, pre-determined, determine, PET, SPECT, fMRI, MRH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 2001/003156 A1 (GILL) 07 June 2001 (07.06.2001) fig 1, 2, 10; para [0016], [0018], [0030]-[0034], [0035], [0040], [0054], [0062], [0063], [0077], [0079], [0080], [0086], [0087].</td>
<td>1-4, 18-22</td>
</tr>
<tr>
<td>Y</td>
<td>US 2006/0224111 A1 (ROSENMAN et al.) 05 October 2006 (05.10.2006) fig 8; para [0004], [0022], [0025]-[0027], [0043].</td>
<td>1-4, 18-22</td>
</tr>
</tbody>
</table>

☐ Further documents are listed in the continuation of Box C. ☐

* 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
17 May 2008 (17.05.2008)

Date of mailing of the international search report
05 JUN 2008

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

Form PCT/ISA/210 (second sheet) (April 2007)
### 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. [X] Claims Nos.: 5-17 and 23  
   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:

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.:

### 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.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2007)