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PCT/US2008/087451		
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(71) Applicant (for all designated States except US): **GREAT LAKES BIOSCIENCES, LLC** [US/US]; 3001 E. Miller Road, Bancroft, MI 48414 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HARGROVE, Jeffrey, B.** [US/US]; 3001 E. Miller Road, Bancroft, MI 48414 (US). **FORD, Robert, M.** [US/US]; 6964 Granger, Troy, MI 48098 (US). **BERANEK, Buckley, D.** [US/US]; 4601 Fox Moor Lane, Greenwood, IN 46143 (US).

(74) Agent: **JONES, Eric, T.**; Reising Ethington P.C., P.O. Box 4390, Troy, MI 48099-4390 (US).

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Published:

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

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(54) Title: BRAIN-RELATED CHRONIC PAIN DISORDER TREATMENT METHOD AND APPARATUS

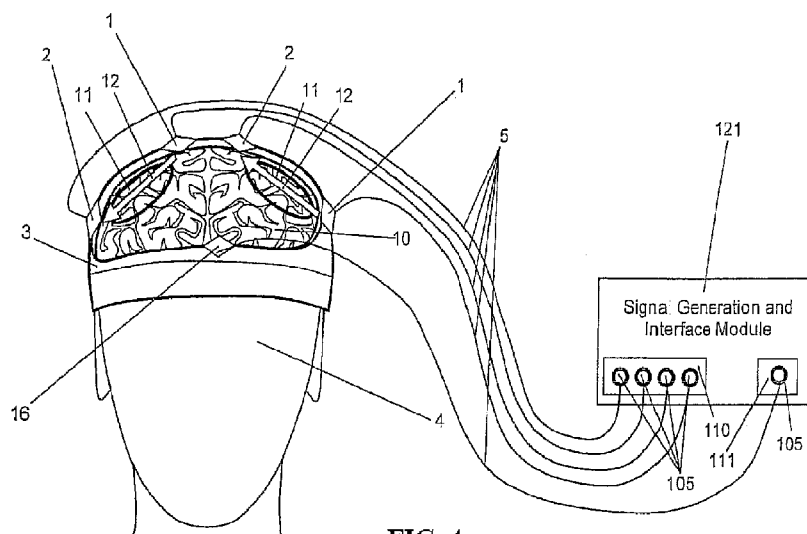


FIG. 4

(57) Abstract: A method for treating brain-related chronic pain disorders in human subjects includes assessing the brain function of a subject suffering from chronic pain, diagnosing a chronic pain-related abnormal brain condition, and mitigating the abnormal brain activity by applying an electrical stimulation signal to tissues corresponding to at least one area of abnormal brain activity.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/032639**A. CLASSIFICATION OF SUBJECT MATTER***A61N 1/36(2006.01)i, A61N 1/32(2006.01)i, A61N 1/08(2006.01)i*

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: A61N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO Internal) "brain", "stimulation", "neuromodulation", "electrode", "non-invasive", "cap", "helmet", "EEG", "AMPWM", "RFID", "programable", "memory", "computer"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6591138 B1 (DAVID R. FISCHER et al.) 8 July 2003	84, 86
Y	See claims 1-8, column 6, line 43 - column 8, line 37, figures 1-3	85
A		87-105
Y	US 2007-0255323 A1 (JONATHAN WERDER et al.) 1 November 2007 See claim 1, paragraph [0008], figures 1-6	85
Y	US 2004-0002635 A1 (JEFFREY B. HARGROVE et al.) 1 January 2004 See claim 1, abstract, figures 1-2	85
A	US 6662053 B2 (WILLIAM N. BORKAN) 9 December 2003 See claims 1-21, column 4, lines 53-63, figures 1-6	84-105
A	US 7228178 B2 (WILLIAM J. CARROLL et al.) 5 June 2007 See claim 1, abstract, figure 2	84-105

☐ 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

"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 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

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Date of mailing of the international search report

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Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JEON, CHANG IK

Telephone No. 82-42-481-8303



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/032639**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.: 1-83
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 1-83 pertain to methods for treatment of human or animal body by surgery and thus relate to a subject matter which this International Searching Authority is not required to search under Article 17(2)(a)(i) and Rule 39.1(iv) PCT.
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:

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 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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/032639

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 06591138 B1	08.07.2003	US 2006-0205993 A1 US 2003-0028072 A1	14.09.2006 06.02.2003
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US 07228178 B2	05.06.2007	AU 2003-294454 A8 AU 2003-294454 A1 US 2007-0208385 A1 US 2004-0138722 A1 WO 2004-047911 A2 WO 2004-047911 A3	18.06.2004 18.06.2004 06.09.2007 15.07.2004 10.06.2004 01.07.2004