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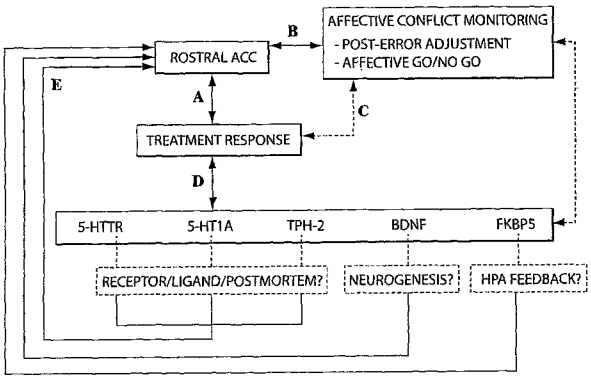
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21 February 2008

(54) Title: SYSTEMS AND METHODS FOR PREDICTING EFFECTIVENESS IN THE TREATMENT OF PSYCHIATRIC DISORDERS, INCLUDING DEPRESSION



(57) Abstract: The present invention pertains to the evaluation and/or treatment of psychopathological diseases. In one aspect, information regarding brain activity, coupled with behavior tests (e.g., determining performance in a computer-based task), may be used to predict the response of a subject to psychological treatment, e.g., with a psychoactive drug. For example, the subject may be one suffering from depression, or other disturbances of the rostral anterior cingulate cortex. Another aspect of the present invention is directed to methods for analyzing neurobiological predictors through integration of information gathered from one or more levels of analyses: (1) behavior, (2) brain function, and/or (3) genes. In one aspect, the methods of the present invention can comprise any one of these components (i.e., behavior, brain function, and genes), or a combination of two or more of these components, and/or other components. Through these methods, development of novel algorithms for improving the ability to identify biological surrogate markers of treatment response are disclosed, according to certain embodiments of the invention. Still other aspects of the present invention are directed to systems and methods for implementing such evaluation techniques, analyzing such evaluation techniques, promotion of such evaluation techniques, and the like.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/008107

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12Q1/68

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)
C12Q

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)
EPO-Internal, WPI Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DAVIDSON RICHARD J ET AL: "The neural substrates of affective processing in depressed patients treated with venlafaxine." AMERICAN JOURNAL OF PSYCHIATRY, vol. 160, no. 1, January 2003 (2003-01), pages 64-75, XP002445481 ISSN: 0002-953X abstract page 64, column 2, paragraph 2 page 65, column 1, paragraph 3 ----- -/--	1

[X] 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 document 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	Date of mailing of the international search report
22 August 2007	13/12/2007

Name and mailing address of the ISA/	Authorized officer
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	Werner, Andreas

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/008107

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HONEY G ET AL: "Human pharmacological MRI" TRENDS IN PHARMACOLOGICAL SCIENCES, ELSEVIER, AMSTERDAM, NL, vol. 25, no. 7, July 2004 (2004-07), pages 366-374, XP004516815 ISSN: 0165-6147 the whole document -----	1

INTERNATIONAL SEARCH REPORT

International application No.
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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:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an 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 reportcovers 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

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claim: 1

   Method for predicting treatment response, comprising analyzing behavior related to rostral ACC function.

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2. claim: 2

   Method for predicting treatment response based on analyzing brain function of the rostral ACC.

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3. claims: 3-5

   Methods for predicting treatment response based on analyzing the genome with respect to SNPs present in genes 5-HT1A, TPH-2, FKBP5, BDNF, and/or 5-HTTLPR.

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4. claims: 6-50

   Methods of diagnosing clinical depression, relating to analyzing the subject's response to negative feedback, and products thereof.
