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(54) Title: METHODS FOR DIAGNOSIS AND TREATMENT OF PSYCHIATRIC DISORDERS

(57) Abstract: The present invention provides methods for the diagnosis and treatment of psychiatric disorders. In particular, the present invention provides convergent functional genomics methods for the identification of candidate genes associated with psychiatric disorders such as mania and psychosis, as well as other multi-faceted diseases and syndromes.



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INTERNATIONAL SEARCH REPORT

Int. Patent Application No.

PCT/US 01/21453

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C12Q1/68 G01N33/50

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 7 C12Q G01N

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.
Y	DECKERT J ET AL: "Adenosine A1 receptor and bipolar affective disorder: systematic screening of the gene and association studies." AMERICAN JOURNAL OF MEDICAL GENETICS. UNITED STATES 7 FEB 1998, vol. 81, no. 1, 7 February 1998 (1998-02-07), pages 18-23, XP009005426 ISSN: 0148-7299 page 19, column 1, line 15 - line 26 --- -/--	1-11



Further documents are listed in the continuation of box C.



Patent family members are listed in 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

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INTERNATIONAL SEARCH REPORT

In International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SOBELL J L ET AL: "Novel association approach for determining the genetic predisposition to schizophrenia: case-control resource and testing of a candidate gene." AMERICAN JOURNAL OF MEDICAL GENETICS. UNITED STATES 1 MAY 1993, vol. 48, no. 1, 1 May 1993 (1993-05-01), pages 28-35, XP009005427 ISSN: 0148-7299 page 28, column 2, line 1 - line 12 abstract page 33, column 1, line 14 - line 40	1-11
Y	CARLSSON B ET AL: "Total RNA and array-based expression monitoring." NATURE BIOTECHNOLOGY. UNITED STATES JUN 2000, vol. 18, no. 6, June 2000 (2000-06), page 579 XP002230605 ISSN: 1087-0156 For details see references therein page 579, column 1, line 1 - line 10	1-11
T	WILLIAMS NIGEL M ET AL: "Genome scans and microarrays: converging on genes for schizophrenia?" GENOME BIOLOGY ENGLAND 2002, vol. 3, no. 4, 2002, page REVIEWS1011 XP002230606 ISSN: 1465-6914 the whole document	1-11
A	MCKENZIE S E ET AL: "PARALLEL MOLECULAR GENETIC ANALYSIS" EUROPEAN JOURNAL OF HUMAN GENETICS, KARGER, BASEL, CH, vol. 6, no. 5, September 1998 (1998-09), pages 417-429, XP000953253 ISSN: 1018-4813 abstract INTRODUCTION DNA MICROARRAYS	1-11

INTERNATIONAL SEARCH REPORT

national application No.
PCT/US 01/21453

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. ☐ 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.:

1-11
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-11

A method for identification of genes associated with psychiatric disorder comprising the essential steps of determining whether the gene has altered expression according to points a)-e) of claims 1, and determining whether said gene maps to a psychiatric disorder linkage region according to point f) of claim 1. A method of claim 1, further characterised by the technical features of claims 2-11.

2. Claims: 12-22

A method of diagnosing bipolar disorder comprising detecting sequence variation in at least one fragment of a G protein-coupled receptor kinase 3 gene obtained from a subject. A method further characterised by the technical features of claims 13-22.

3. Claims: 23-26

A method of screening compounds that alter expression of at least one psychiatric gene according to claims 23-26.