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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

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27 June 2013

(54) Title: NEURODEVELOPMENTAL DISORDERS

(57) Abstract: The invention provides pharmaceutical compositions, medicaments and methods for use in preventing, ameliorating or treating neurodevelopmental disorders. The invention extends to novel synthetic methods for preparing active agents useful in the treatment of neurodevelopmental disorders.



INTERNATIONAL SEARCH REPORT

International application No PCT/GB2012/052278

A. CLASSIFICATION OF SUBJECT MATTER INV. A61K31/407 A61P25/18 C07D491/056 ADD. According to International Patent Classification (IPC) or to both national classification and IPC
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B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A61K C07D Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal , BIOSIS, CHEM ABS Data, EMBASE, WPI Data
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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SCULLION G A ET AL: "Chronic treatment with the-adrenoceptor antagonist fluparoxan prevents age-related deficits in spatial working memory in APPPS1 transgenic mice without altering -amyloid plaque load or astrocytosis", NEUROPHARMACOLOGY, PERGAMON PRESS, OXFORD, GB, vol . 60, no. 2, 3 September 2010 (2010-09-03) , pages 223-234, XP028365576, ISSN : 0028-3908, DOI : 10. 1016/J . NEUROPHARM.2010.09 .002 [retrieved on 2010-09-17]	1,4,5 , 7-12, 14-16,25
Y	----- - / - -	1-16,25, 27

<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.
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* 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
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Date of the actual completion of the international search 28 November 2012	Date of mailing of the international search report 07/05/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Steendijk, Martijn
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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2012/052278

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	----- wo 03/082866 AI (ORION CORP [FI] ; DIN BELLE DAVID [FI] ; JOKELA REIJA [FI] ; TOLVANEN ART) 9 October 2003 (2003-10-09) pages 58-59	1-16,25, 27
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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2012/052278

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>GIBBS A A ET AL: "Del eti on variant of +/-2b-adrenergi c receptor gene moderates the effect of COMT val<158>met polymorphi sm on epi sodi c memory performance" , EUROPEAN NEUROPSYCHOPHARMACOLOGY, ELSEVI ER SCIE NCE PUBLISHERS BV, AMSTERDAM, NL, vol . 20, no. 4, 1 Apri l 2010 (2010-04-01) , pages 272-275 , XP026930262, ISSN : 0924-977X, DOI : 10. 1016/J . EURONEUR0.2009 . 12.007 [retri eved on 2010-01-27] abstract</p> <p style="text-align: center;">-----</p>	13 ,27
Y	<p>KOHLI UTKARSH ET AL: "Effects of variation in the human alpha2A- and alpha2C-adrenoceptor genes on cogni tive tasks and pai n perception .", EUROPEAN JOURNAL OF PAIN (LONDON , ENGLAND) FEB 2010, vol . 14, no. 2, February 2010 (2010-02) , pages 154-159 , XP002688114, ISSN : 1532-2149 abstract</p> <p style="text-align: center;">-----</p>	13 ,27
A	<p>WEICKERT T W ET AL: "Catechol -0-methyl transferase val<108/158>met genotype predi cts working memory response to antipsychoti c medi cations" , BIOLOGICAL PSYCHIATRY, ELSEVI ER SCIE NCE, NEW YORK, NY, US, vol . 56, no. 9, 1 November 2004 (2004-11-01) , pages 677-682, XP004619801 , ISSN : 0006-3223, DOI : 10. 1016/J . BI0PSYCH.2004.08.012</p> <p style="text-align: center;">-----</p>	1-16,25, 27

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2012/052278

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 all searchable 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 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.:

1-16, 25(completely) ; 27(partial ly)

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. claims: 1-16, 25 (completely) ; 27 (partially)

fluparoxan or its derivatives (formula (I)) for use in treatment of neurodevelopmental disorders

2. claims: 17-24, 26 (completely) ; 27 (partially)

Alpha2 adrenergic receptor antagonist for use in treatment of disease characterized by cognitive dysfunction in high COMT, normal ADRA2B or normal ADRA2C patients

3. claims: 28-43

process for preparing a dioxane (IV)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/GB2012/052278

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