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(81) **Designated States** *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(88) **Date of publication of the international search report**:
31 October 2013

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(54) **Title**: METHODS FOR TREATING ALZHEIMER'S DISEASE BY ADMINISTERING CERTAIN SYNTHETIC COMPOUNDS

(57) **Abstract**: Use of a synthetic compound selected from the group consisting of JKF-006, JKF-011 and JKF-027 in the preparation of a medicament for treating Alzheimer's disease.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2013/000458

A. CLASSIFICATION OF SUBJECT MATTER

See the extra sheet

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: A61K31, A61P

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 practicable, search terms used)

WPI, EPODOC, CNPAT, CNKI, CAPLUS: JKF-006, JKF-011, JKF-027, NSC 27441, piperazinone, +piperazine, furanyl, cyano, Alzheimer, amyloid, dementia etc.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	Lei Wang et al. Epidermal growth factor receptor is a preferred target for treating Amyloid-β-induced memory loss. PNAS. 09 October 2012 (09.10.2012) vol. 109, no. 41: 16743–16748.	1-5
PX	WO 2012103282 A2 (ZHONG YI et al.) 02 August 2012 (02.08.2012) see claims 5, 8 and 11, description paragraphs [0004], [0013]-[0017], [0033], [0041], [0065].	1-5
X	CN 101273962 A (SHANDONG LANJIN BIOLOG ENGINEE et al.) 01 October 2008 (01.10.2008) see claims 1, 8 and 9, description page 10 paragraph 2	3
A	RN 335207-38-0 REGISTRY ED Entered STN: 11 May 2001 (11.05.2001)	1-5
A	RN 330861-11-5 REGISTRY ED Entered STN: 11 April 2001 (11.04.2001)	1-5

☒ 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 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
23 July 2013 (23.07.2013)	**15 Aug. 2013 (15.08.2013)**
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	Authorized officer XIAO, Ying Telephone No. (86-10)62411195

Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2013/000458

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Tiago Fleming Outeiro et al. Sirtuin 2 Inhibitors Rescue α-Synuclein-Mediated Toxicity in Models of Parkinson's Disease. SCIENCE. 27 July 2007 (27.07.2007) 317: 516-519.	1-5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2013/000458

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 and 2
because they relate to subject matter not required to be searched by this Authority, namely:
The subject matter of claims 1 and 2 relates to a method of treatment of the human or animal body (Rule 39.1(iv)). However, the search has been carried out and based on the use of the compound in the preparation of a medicament for treating Alzheimer's disease in claims 1 and 2.

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:

Group 1: claims 1-5 (partly), drawn to a method of treating Alzheimer's disease with JKF-006 or JKF-027, a phamaceutical composition comprising JKF-006 or JKF-027, and use of JKF-006 or JKF-027.

Group 2: claims 1-5 (partly), drawn to a method of treating Alzheimer's disease with JKF-011, a phamaceutical composition comprising JKF-011, and use of JKF-011.

JKF-006, JKF-011 and JKF-027 are known compounds. A common structure of the compound in two groups is not present, and the compound in two groups does not belong to a recognized class of chemical compounds in the art to which the invention pertains. Therefore these groups are not so linked as to form a single general inventive concept and therefore do not meet the requirement of PCT Rule 13.1.

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 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/IB2013/000458

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
WO 2012103282 A2	02.08.2012	WO 2012103282 A3	01.11.2012
CN 101273962 A	01.10.2008	None	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2013/000458

A. CLASSIFICATION OF SUBJECT MATTER:

A61K 31/341 (2006.01) i

A61K 31/495 (2006.01) i

A61K 31/5377 (2006.01) i

A61P 25/28 (2006.01) i