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A61K 31/7105 (2006.01) *A61P 9/04* (2006.01)
C07K 7/08 (2006.01) *A61P 9/00* (2006.01)

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(71) Applicant (for all designated States except US): **UNIVERSITY OF ROCHESTER** [US/US]; Box OTT, 601 Elmwood Avenue, Rochester, New York 14642 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **JIN, Zheng-gen** [US/US]; 195 Parkwood Avenue, Rochester, New York 14620 (US).

(74) Agents: **MCKEON, Tina Williams** et al.; McKeon, Meunier, Carlin & Curfman, LLC, Suite 900, 817 W. Peachtree Street NW, Atlanta, Georgia 30308 (US).

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Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

— with sequence listing part of description (Rule 5.2(a))

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

19 July 2012

(54) Title: THE cAMP/PKA/HDAC5 PATHWAY AND USES THEREOF

(57) Abstract: The present invention provides novel uses of the cAMP/PKA/HDAC5 pathway for the treatment and prevention of myopathies.



WO 2012/009447 A3

A. CLASSIFICATION OF SUBJECT MATTER

A61K 38/10(2006.01)i, A61K 39/395(2006.01)i, A61K 31/7105(2006.01)i, C07K 7/08(2006.01)i, C12N 15/63(2006.01)i, C12N 15/113(2010.01)i, A61P 9/04(2006.01)i, A61P 9/00(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)

A61K 38/10; C12Q 1/02; A61K 48/00

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

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal), NCBI gene bank, Pubmed & keywords: "HDAC5", "histone deacetylase", "PKA activator", "MEF2", "cAMP", "myopathy", "hypertrophy", "heart failure"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6632628 B1 (OLSON, E.N. et al.) 14 October 2003	42
A	See abstract; Figures 17, 21; column 8, lines 49-55; column 9, lines 6-18; column 14-18; examples 11; claims 1, 3, 6, 8, 9, 11.	34-41
A	HANG, C.L. et al. Class II Histone Deacetylases Act as Signal-Responsive Repressors of Cardiac Hypertrophy. Cell. 2002, Vol. 110, pp. 479-488 See the whole document.	34-42
A	MCKINSEY, T.A. et al. Activation of the myocyte enhancer factor-2 transcription factor by calcium/calmodulin-dependent protein kinase-stimulated binding of 14-3-3 to histone deacetylase 5. Proceedings of the National Academy of Sciences. 2000, Vol. 97, No. 26, pp. 14400-1440 See the whole document.	34-42
A	CARNEGIE, G.K. et al. AKAP-Lbc Mobilizes a Cardiac Hypertrophy Signaling Pathway. Molecular Cell. 2008, Vol. 32, pp. 169-179 See summary; Figures 6, 7; page 176; page 177, right column, 4th paragraph.	34-42



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

27 MARCH 2012 (27.03.2012)

Date of mailing of the international search report

28 MARCH 2012 (28.03.2012)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
Government Complex-Daejeon, 189 Cheongsa-ro,
Seo-gu, Daejeon 302-701, Republic of Korea

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Authorized officer

Kim, Eun Young

Telephone No. 82-42-481-8733



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/043873**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.: 1-33
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 1-33 pertain to methods for treatment of the human body by therapy and thus related to a subject matter which this International Searching Authority is not required to search under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the 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/US2011/043873Patent document
cited in search reportPublication
datePatent family
member(s)Publication
date

US 6632628 B1

14. 10. 2003

US 2005-0106654 A1

19. 05. 2005

US 2009-087412 A1

02. 04. 2009

US 7420100 B2

02. 09. 2008