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(71) Applicant (for all designated States except US):

**AR-
QULE, INC.** [US/US]; 19 Presidential Way, Woburn, MA
01801 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ASHWELL, Mark, A.** [GB/US]; 8 Heald Road, Carlisle, MA 01741-1420 (US). **EATHIRAJ, Sudharshan** [IN/US]; 904 Alder Way, North Andover, MA 01845 (US). **FILIKOV, Anton** [US/US]; 5908 Vandegrift Avenue, Rockville, MD 20851 (US). **KOERNER, Steffi** [DE/US]; 231 Arlington Street, Medford, MA 02155 (US). **LAPIERRE, Jean-Marc** [US/US]; 1 Alexandra Drive, Pelham, NH 03076 (US). **LIU, Yanbin** [CN/US]; 103 Canterbury Hill Road, Acton, MA 01720 (US). **PALMA, Rocio** [AU/US]; 11 Royal Crest Drive, #10, North Andover, MA 01845 (US). **VENSEL, David** [US/US]; 49 Gorham Avenue, #3, Brookline, MA 02445 (US). **IIMURA, Shin** [JP/JP]; C/o Daiichi Sankyo Company Limited, 1-2-58, Hiromachi, Shinagawa-ku, Tokyo, 140-8710 (JP). **SHIINA, Akiko** [JP/JP]; C/o Daiichi Sankyo Company Limited, 3-5-1, Nihonbashi Honcho, Chuo-ku, Tokyo, 103-8426 (JP).

YOSHIDA, Kenichi [JP/JP]; C/o Daiichi Sankyo Company Limited, 1-2-58, Hiromachi, Shinagawa-ku, Tokyo, 140-8710 (JP). **YAMAZAKI, Takanori** [JP/JP]; C/o Daiichi Sankyo Company Limited, 1-2-58, Hiromachi, Shinagawa-ku, Tokyo, 140-8710 (JP). **MATSUDA, Akihisa** [JP/JP]; C/o Daiichi Sankyo Company Limited, 1-2-58, Hiromachi, Shinagawa-ku, Tokyo, 140-8710 (JP).

(74) Agents: **ELRIFI, Ivor, R.** et al.; Mintz Levin Cohn Ferris Glovsky & Popeo, P.C., One Financial Center, Boston, MA 02111 (US).

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Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

16 August 2012

(54) Title: SUBSTITUTED BENZO-IMIDAZO-PYRIDO-DIAZEPINE COMPOUNDS

(57) Abstract: The present invention relates to substituted benzo-imidazo-pyrido-diazepine compounds and methods of synthesizing these compounds. The present invention also relates to pharmaceutical compositions containing substituted benzo-imidazo-pyrido-diazepine compounds and methods of treating cell proliferative disorders, such as cancer, by administering these compounds and pharmaceutical compositions to subjects in need thereof.



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A. CLASSIFICATION OF SUBJECT MATTER

C07D 471/14(2006.01)i, C07D 487/14(2006.01)i, A61K 31/5517(2006.01)i, A61K 31/5513(2006.01)i, A61P 35/00(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)

C07D 471/14; C07D 471/22; C07D 487/04; A61K 31/55; C07D 513/22; C07D 487/22; A61K 31/551

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) & Keywords: cancer, benzo, imidazo, pyrido, diazepine

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009-0197869 A1 (ARVANITIS ARGYRIOS G. et al.) 06 August 2009 See abstract, pages 17-22 : Table 1, claims 1, 60, 62.	1-19
Y	US 2004-0132723 A1 (CHRISTIANE YOAKIM et al.) 08 July 2004 See paragraphs [0014] ~ [0031], claims 1, 9-11, 17.	1-19
Y	US 2010-0249108 A1 (TANDON MANISH et al.) 30 September 2010 See abstract, paragraph [0007], claims 1, 14, 15, 19.	1-19
Y	WO 99-07379 A1 (BOEHRINGER INGELHEIM PHARMACEUTICALS, INC.) 18 February 1999 See pages 4-5, claim 1.	1-19

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

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Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JOUNG, Meyoung Ju

Telephone No. 82-42-481-8287



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.: 20
because they relate to subject matter not required to be searched by this Authority, namely:
Claim 20 pertains to methods for treatment of the human by therapy, as well as diagnostic methods, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
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/US2011/058716

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0197869 A1	06.08.2009	CA 2621261 A1	05.04.2007
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