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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

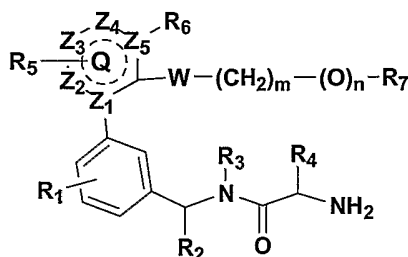
- with international search report

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

23 November 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INHIBITORS OF PROTEIN ARGININE METHYL TRANSFERASES



(I)

(57) Abstract: A compound of Formula (I), or a stereoisomer, a tautomer, a pharmaceutically acceptable salt or solvate thereof, methods of using such compounds in the treatment of hyperproliferative, inflammatory, infectious, and immunoregulatory disorders and diseases; and to pharmaceutical compositions containing such compounds.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/046362

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D231/14 C07D401/12 C07D403/12 C07D405/12 C07D409/12
C07D413/04 C07D413/14 C07D417/12 C07D417/14

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

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)

EPO-Internal, WPI Data, PAJ, BEILSTEIN Data, CHEM ABS Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 295 867 A (TAKEDA CHEMICAL INDUSTRIES, LTD; TAKEDA PHARMACEUTICAL COMPANY LIMITED) 26 March 2003 (2003-03-26) Formula I; paragraphs [0006] - [0008]	1-33
A	WO 03/091246 A (VERTEX PHARMACEUTICALS INCORPORATED; HALE, MICHAEL, R; MALTAIS, FRANCO) 6 November 2003 (2003-11-06) Formula I; paragraphs [0106] - [0116]; table 1	1-33
A	WO 2004/098634 A (NATIONAL INSTITUTES OF HEALTH; NABEL, ELIZABETH, G; NABEL, GARY, J; YO) 18 November 2004 (2004-11-18) page 1, lines 30,31; claims 1,4,10,11 page 2, lines 19-25	1-33

-/-



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 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

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"&" document member of the same patent family

Date of the actual completion of the international search

26 July 2006

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PCT/US2005/046362

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 03/102143 A (BRISTOL-MYERS SQUIBB COMPANY; RYSECK, ROLF, PETER; JAYARAMAN, LATA; BO) 11 December 2003 (2003-12-11) abstract -----	1-33
A	HENG HONG, CHINGHAI KAO, MEEI-HUEY JENG, JOHN N. EBLE, MICHAEL O. KOCH, THOMAS A. GARDNER ET AL.: "Aberrant Expression of CARM1, a Transcriptional Coactivator of Androgen Receptor, in the Development of Prostate Carcinoma and Androgen-Independent Status" CANCER, vol. 101, no. 1, 2004, pages 83-89, XP002392099 the whole document -----	1-33

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/046362

Box 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.: 31-33
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 31-33 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
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 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.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2005/046362

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1295867	A	26-03-2003	AU 6634601 A WO 0200606 A1 US 2004106792 A1	08-01-2002 03-01-2002 03-06-2004
WO 03091246	A	06-11-2003	AU 2003237121 A1 EP 1506189 A1	10-11-2003 16-02-2005
WO 2004098634	A	18-11-2004	NONE	
WO 03102143	A	11-12-2003	AU 2003238835 A1	19-12-2003