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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: COMPOUNDS AND METHODS FOR THE TREATMENT OF UBIQUITIN CONJUGATING DISORDERS



(57) Abstract: The present invention provides methods for identifying compounds that selectively bind one or more active sites within an ubiquitin conjugating enzyme. The compounds identified by the methods are useful in the treatment of disorders attributed to dysregulated ubiquitin conjugating enzyme function, specifically in hyperproliferative disorders.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/28358

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A01N 37/18(2006.01)

USPC: 514/2

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)

U.S. : 514/2

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)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
x	US 5,985,857 (Hudson et al), 16 November 1999 (16.11.1999) Figure 30D.	14, 15, 18, 19
x	Shirahata A. et al, Enzymatic aminopropylation of certain secondary amines. BIOL. PHARM. BULL. 1995 Feb; 18(2): 355-9. Line 2 in abstract.	16, 17



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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
20 July 2006 (20.07.2006)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/28358

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim 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. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation 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 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.: 1-19

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

PCT/US05/28358

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-13-in-part, 14-19, drawn to methods of inhibiting a ubiquitin conjugating enzyme with a compound of Formula (I).

Group II, claim(s) 1-13-in-part, 20-33, drawn to methods of inhibiting a ubiquitin conjugating enzyme with a compound of Formula (II).

Group III, claim(s) 34-44, drawn to methods of determining interaction between an enzyme and a compound by computer modeling.

Group IV, claim(s) 45-50, drawn to methods of treating hyperproliferative disorders using a compound of Formula (I).

Group V, claim(s) 51-56, drawn to methods of treating hyperproliferative disorders using a compound of Formula (II).

Group VI, claim(s) 57-67, drawn to methods of treating hyperproliferative disorders using a compound of Claim 57.

Group VII, claim(s) 68-69, drawn to methods of treating hyperproliferative disorders using a compound of Claim 68.

This International Search Authority considers that the international application does not comply with the requirements of unity of inventions (Rules 13.1, 13.2 and 13.3) for the reasons indicated below:

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Formula (I) and Formula (II) each define differing sets of compounds having differing structures and biological activities. These compounds lack the same or similar special technical feature and do not link the differing categories of invention. Methods of using these compounds also do not share a special technical feature. Each method has differing steps using differing materials to differing goals. There is no shared special technical feature between all the groups.

Continuation of B. FIELDS SEARCHED Item 3:

STN, MEDLINE

Search terms: aminomethyl piperidine, ubiquitin-conjugating, inhibit