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27 November 2008

(54) Title: TRIAZOLE MACROCYCLE SYSTEMS

(57) Abstract: The present invention provides novel peptidomimetic macrocycles and methods for their preparation and use, as well as amino acid analogs and macrocycle-forming linkers, and kits useful in their production.



WO 2008/104000 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 08/54922

A CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61 K 38/00 (2008.04)

USPC - 514/11

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)

USPC 514/11

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC 514/10 (see search terms below)

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

PubWEST(USPT,PGPB,EPAB,JPAB), GoogleScholar

Search macrocycle, peptidomimetic, cyclic peptide, macromolecule, triazole, linker group, amino acid, helix, helical, copper, ruthenium

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	US 4,000,259 A (GARSKY) 28 December 1976 (28 12 1976) col 1, ln 50-65, col 2, ln 25-30, col 4, ln 5-15	1-76
Y	US 2003/0166138 A1 (KINSELLA et al) 4 September 2003 (04 09 2003) Fig 1	1-26
Y	US 2006/0111411 A1 (COOPER et al) 25 May 2006 (25 05 2006) para [0007]-[0008], [0011], [0017]	1-76
Y	US 5,650,133 A (CARVALHO et al) 22 July 1997 (22 07 1997) col 5, ln 50-55	27-76
Y	US 2004/0152708 A1 (LI et al) 5 August 2004 (05 08 2004) para [0085]	11
Y	US 2006/0014675 A1 (ARORA et al) 19 January 2006 (19 01 2006) para [0010], [0056]	13-26, 57, 63 and 76
Y	W0 1996/28449 A1 (HOFFMAN et al) 19 September 1996 (19 09 1996) pg 53, ln 5-15	44-76

Further documents are listed in the continuation of Box C

* 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

17 September 2008 (17 09 2008)

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25 SEP 2008

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INTERNATIONAL SEARCH REPORT

International application No

PCVUS 08/54922

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 ☐ **I** Claims Nos
because they relate to subject matter not required to be searched by this Authority, namely

- 2 **D** 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 ☒ **IAI** Claims Nos 77
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
see extra sheet

- 1 ☒ **IXI** As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
- 2 ☐ **I J** As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees
- 3 ☐ **I I** 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

International Application No.

PCT/US 08/54922

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: claims 1-26, drawn to peptidomimetic macrocycles of Formula (I).

Group II: claims 27-45, drawn to compounds of Formula Ia or Ib, and related kits.

Group III: claims 46-76, drawn to methods for synthesizing peptidomimetic macrocycles utilizing precursors of Formula III and Formula IV.

The inventions listed as Groups I - III 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:

It will be readily apparent that the compounds of the claims of group I, represented by peptidomimetic macrocycles of Formula (I), and group II, represented by compounds of Formula Ia or Ib, do not share any special technical feature. In addition, it will be readily apparent that the methods of the claims of group III are distinct from the claims of groups I and II, directed to compounds per se. While the methods of the claims of group III may result in peptidomimetic macrocycles of Formula (I) of the claims of group I, the claims are not limited thereto, nor are the peptidomimetic macrocycles of Formula (I) of the claims of group I limited to synthesis by the methods of the claims of group III.

Thus, the inventions listed as Groups I-III 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 feature. According to PCT Rule 13.2, unity of invention exists only when the same or corresponding technical feature is shared by all claimed inventions.

In this case the first named invention that will be searched without additional fees is Group I represented by claims 1-26.

Claim 77 has been found to be unsearchable because it is a dependent claim that is not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).