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

(54) Title: HETEROGENEOUS FOLDAMERS CONTAINING α , β , AND/OR γ -AMINO ACIDS

(57) Abstract: Disclosed are isolated, unnatural polypeptides containing cyclically-constrained β -amino acid residues and cycli-
cally-constrained γ -amino acid residues. The compounds are unnatural and because they contain rotationally constrained residues
that are not amenable to enzymatic degradation, the compounds are useful to probe protein-protein and other large molecule inter-
actions.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/26694

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 33/53; C07K 14/00, 7/08, 7/06, 5/06, 5/04
US CL : 435/7.1; 530/324, 325,326,327,328,329,330,331

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. : 435/7.1; 530/324, 325,326,327,328,329,330,331

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)
WEST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US2002/0032334 A1 (GELLMAN et al.) 14 March 2002 (14.03.2002). See page 13, column 1	1-14
Y	US 6,060,585 A (GELLMAN et al) 09 May 2000 (09.05.2000). See Figure 7, and Columns 31-32, lines 1-55	1-14

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:		"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
"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier application or patent published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

08 April 2004 (08.04.2004)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/26694

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.: Claims 1-14 (in part) alicyclic unnatural amino acid containing peptides

Remark on Protest

☐
☐

- The additional search fees were accompanied by the applicant's protest.
No protest accompanied the payment of additional search fees.

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.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

Group 1, Claims 1-14 (in part) alicyclic unnatural amino acid containing peptides.

Group 2, Claims 1-14 (in part) aryl unnatural amino acid containing peptides.

Group 3, Claims 1-14 (in part) 5, and 6 membered monoazacyclic unnatural amino acid containing peptides.

Group 4, Claims 1-14 (in part) piperazinyl unnatural amino acid containing peptides

Group 5, Claims 1-14 (in part) heteroaryl unnatural amino acid containing peptides containing N < O < or S hetero atoms.

Each group has different unnatural amino acid members, requiring separate search, and are mimics of different natural amino acids, therefore, are chemically and biologically different peptides. .

The inventions listed as Groups 1-5 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: each group is related to chemically, and biologically distinct peptides, which require different search, and are mimics of different folds in natural peptides.