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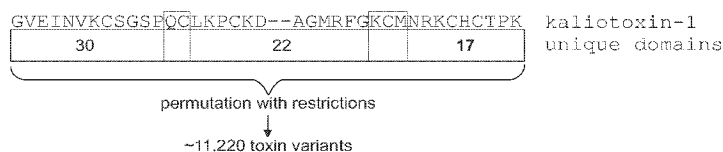


FIG. 8A

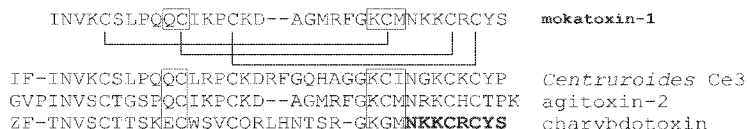


FIG. 8B

(57) Abstract: The disclosure relates to a method and system of screening for ligands which specifically bind to receptors. The method comprises expressing at least one receptor. The at least one receptor is contacted with a sample comprising at least one ligand. Whether the ligand selectively binds to the receptor is determined.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/13385

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G01N 33/566 (2009.01)

USPC - 436/501

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)

IPC(8): G01N 33/566 (2009.01)

USPC: 436/501

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
FEBS Letters, Vol 431

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

WEST (PGPB,USPT,EPAB,JPAB): toxin, ligand, receptor, transmembrane, snake, snail, scorpion, lizard, channel, peptide, library, residue, position, Kv1.3, transfect, heterologous, phage display; esp@cenet: steven goldstein, ligand, toxin, receptor
Google Scholar: toxin peptide amino acid residues six cysteine located positions

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2005/0272093 A1 (MACKINNON) 8 December 2005 (08.12.2005), para [0022], [0023], [0028],[0097], [0098], [0156], [0216], [0222], [0244], [0331], [0332], [0547], [0554].	1-3, 5-12, 17 ----- 4, 13, 14, 16
Y	US 2003/0068672 A1 (YU) 10 April 2003 (10.04.2003), para [0018], [0080], [0232].	4
Y	US 2007/0071764 A1 (SULLIVAN et al.) 27 March 2007 (27.03.2007), para [0022], [0224], [0062], [0274].	13, 14 and 16
Y	LEGROS et al. "Evidence for a new class of scorpion toxins active against K+ channels". FEBS Letters; 24 July 1998; Vol. 431, pg. 375- 380, especially pages 375, abstract, and 377, Fig 2.	14
A	US 2006/0264374 A1 (GILLY et al.) 23 November 2006 (23.11.2006)	1-14, 16 and 17

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

29 May 2009 (29.05.2009)

Date of mailing of the international search report

09 JUN 2009

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/13385

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.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 15, 18, 26 and 27
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:
Claims were directed to sequences without providing SEQ ID NO's.

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:

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 1-14, 16 and 17, directed to a method of detecting the presence of a ligand in a sample, comprising contacting a potential receptor with a toxin.

Group II: claim 19, directed to a library of toxin peptides

Group III: claims 20 and 23, directed to a polypeptide having SEQ ID NO: 1.

Group IV: claims 21, 24 and 25, directed to a polypeptide having SEQ ID NO: 2.

- Please see extra sheet for continuation -

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 additional fees, this Authority did not invite payment of additional fees.
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.:
1-14, 16 and 17

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.

Continuation of Box III: Lack of Unity of Invention

Group V: claim 22, directed to a polypeptide having SEQ ID NO: 3.

The inventions listed as Groups I - V 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:

The special technical feature of the Group I claims is a method of detecting the presence of a ligand in a sample, comprising contacting a potential receptor with a toxin, and a library of toxins useful for said assay. The special technical feature of the Group II claims is a library comprising toxin peptides. The special technical feature of the claims of Groups III-V are individual polypeptides having particular sequences.

There is no common technical element shared by the above groups. Although Groups III-V are each directed to polypeptide sequences, each sequence is unique. Further, although Groups I and II share the common technical feature of a library comprising toxin peptides, this common technical element does not improve upon the prior art of US 2006/0264374 A1 to Gilly et al. (see para [0016]). Therefore, the inventions of Groups I-V lack unity of invention under PCT Rule 13 because they do not share a same or corresponding special technical feature.