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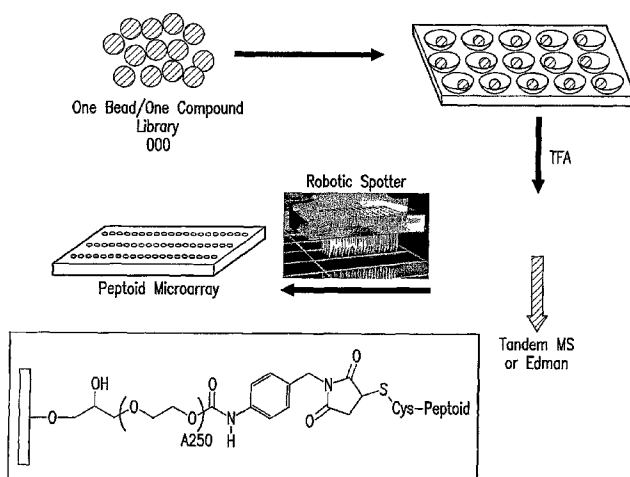
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROTEIN AND ANTIBODY PROFILING USING SMALL MOLECULE MICROARRAYS



(57) Abstract: Aspects of the present invention describe methodology by which arrays of synthetic molecules can be created and employed for various types of proteomics profiling experiments. The most important of these from a clinical standpoint are the visualization of antibody and T cell binding patterns, which could be employed as a tool for monitoring the state of the immune system of a patient. This may be a generally useful tool for the diagnosis of many types of disease states. Similar techniques are employed to detect the post-translational modification of specific proteins, a tool for the visualization of induction of signal transduction pathways in cells and tissues treated with drugs. Finally, aspects of the invention teach a method for the creation of simpler arrays with less than 100 features that are, nonetheless, effective for protein profiling experiments.

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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER INV. G01N33/68		
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) G01N		
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, BIOSIS, EMBASE		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	REDDY M MURALIDHAR ET AL: "Transformation of low-affinity lead compounds into high-affinity protein capture agents" CHEMISTRY & BIOLOGY (CAMBRIDGE), vol. 11, no. 8, August 2004 (2004-08), pages 1127-1137, XP002412632 ISSN: 1074-5521	1,2, 7-12, 22-29, 31, 33-36, 38-42, 45-51, 53,54
Y	page 1136, column 1, paragraphs 5,6	3-6, 13-21, 30,32, 37,43, 44,52, 54-65
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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 *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		Date of mailing of the international search report
21 December 2006		12/01/2007
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016		Authorized officer Hinchliffe, Philippe

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2006/018507

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HEINE N ET AL: "Synthesis and screening of peptoid arrays on cellulose membranes" TETRAHEDRON, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 59, no. 50, 8 December 2003 (2003-12-08), pages 9919-9930, XP004474435 ISSN: 0040-4020	1,2,5, 7-12, 22-29, 31, 33-36, 38-42, 45-51, 53,54
Y	see section 2.4	3,4,6, 13-21, 30,32, 37,43, 44,52, 55-65
X	----- ALLURI PRASANNA G ET AL: "Isolation of protein ligands from large peptoid libraries." JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 125, no. 46, 19 November 2003 (2003-11-19), pages 13995-14004, XP002412542 ISSN: 0002-7863 abstract	1
X	----- REINEKE U ET AL: "Identification of distinct antibody epitopes and mimotopes from a peptide array of 5520 randomly generated sequences" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER, AMSTERDAM, NL, vol. 267, no. 1, 1 September 2002 (2002-09-01), pages 37-51, XP004372978 ISSN: 0022-1759	1,2, 5-12, 22-29, 31, 33-36, 38-42, 45-51, 53,54
Y	see section 2.3 abstract	3,4, 13-21, 30,32, 37,43, 44,52, 55-65
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/018507

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/055125 A1 (CHARYCH DEBORAH [US] ET AL) 9 May 2002 (2002-05-09)	1,2, 7-12, 22-29, 31, 33-36, 38-42, 45-51, 53,54
Y	paragraph [0104]; claims 1,43,44	3-6, 13-21, 30,32, 37,43, 44,52, 55-65
X	----- WO 02/073209 A2 (AFFINA IMMUNTECHNIK GMBH [DE]; KUNZE RUDOLF [DE]) 19 September 2002 (2002-09-19)	1-5, 9-23, 30-36, 39-41, 52-54
Y	abstract; claim 1	6-8, 24-29, 37,38, 42-51, 55-65
X	----- US 2002/055186 A1 (BARRY RICHARD [GB] ET AL) 9 May 2002 (2002-05-09)	1,2,9, 10, 12-21, 30-36, 39-41, 43,52,53
Y	figure 1	6-8, 24-29, 37,38, 42, 44-51, 54-65
P,X	----- REDDY M MURALIDHAR ET AL: "Protein fingerprinting" in complex mixtures with peptoid microarrays" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 102, no. 36, September 2005 (2005-09), pages 12672-12677, XP002412633 ISSN: 0027-8424 page 12672, column 2, paragraph 2 -----	1-65

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Although claim 61 is directed to a method of treatment of the human/animal body (some of the environmental conditions covered by claim 60 in combination with claim 61 may be considered as covering methods of torture which are not patentable in some patent systems), the search has been carried out and based on the alleged effects of the compound/composition on isolated cells only.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

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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.:
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210

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:
see FURTHER INFORMATION sheet PCT/ISA/210

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

Information on patent family members

International application No

PCT/US2006/018507

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002055125 A1	09-05-2002	US 2003017508 A1 US 2003013130 A1	23-01-2003 16-01-2003
WO 02073209 A2	19-09-2002	NONE	
US 2002055186 A1	09-05-2002	NONE	