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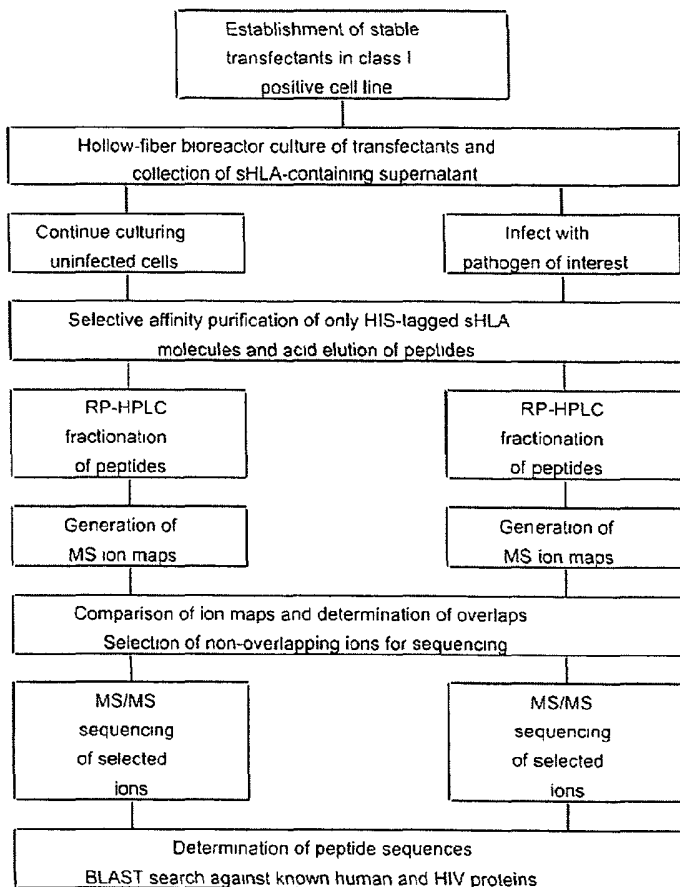
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[Continued on next page]

(54) Title: COMPARATIVE LIGAND MAPPING FROM MHC CLASS I POSITIVE CELLS



(57) Abstract: The present invention relates generally to a methodology for the isolation, purification and identification of peptide ligands presented by MHC positive cells. In particular, the methodology of the present invention relates to the isolation, purification and identification of these peptide ligands from soluble class I and class II MHC molecules which may be from uninfected, infected, or tumorigenic cells. The methodology of the present invention broadly allows for these peptide ligands and their cognate source proteins thereof to be identified and used as markers for infected versus uninfected cells and/or tumorigenic versus nontumorigenic cells with said identification being useful for marking or targeting a cell for therapeutic treatment or priming the immune response against infected cells.

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SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*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.*

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**(88) Date of publication of the international search report:**

11 August 2005

**INTERNATIONAL SEARCH REPORT**

International Application No  
PCT/US2004/014932

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C07K7/00 G01N33/50

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 7 C07K 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, PAJ, BIOSIS, MEDLINE, EMBASE, Sequence Search

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE EPO Proteins 'Online! 27 March 2003 (2003-03-27), "Sequence 1267 from Patent W002086122." XP002314962 retrieved from EBI accession no. EPOP:AX678488 Database accession no. AX678488 *100% identity in 9 aa overlap (1-9:83-91) with SEQ ID NO:14* &amp; WO 02/086122 A2 (HYBRIGENICS; LEGRAIN, PIERRE; DAVIET, LAURENT) 31 October 2002 (2002-10-31)</p> <p style="text-align: center;">----- -/--</p>	1-12

Further documents are listed in the continuation of box C.

Patent family members are listed in 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

25 January 2005

Date of mailing of the international search report

13.06.2005

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/014932

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	RAMMENSEE HANS-GEORG ET AL: "SYFPEITHI: Database for MHC ligands and peptide motifs" IMMUNOGENETICS, SPRINGER VERLAG, BERLIN, DE, vol. 50, no. 3-4, November 1999 (1999-11), pages 213-219, XP002183663 ISSN: 0093-7711 *whole document, in particular: tables 2 and 4*	1-12
A	----- SATHIAMURTHY M ET AL: "Population of the HLA ligand database." TISSUE ANTIGENS, vol. 61, no. 1, January 2003 (2003-01), pages 12-19, XP002314961 ISSN: 0001-2815 *whole document* -----	1-12

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/014932

## 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:
  
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:
  
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:

see additional 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.:

1-12 (all partially)

### Remark on Protest

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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-12 (all partially)

Invention 1 concerns a peptide comprising sequence SEQ ID NO:14.

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2-84,claims: 1-12 (all partially)

Inventions 2-84 concern peptides comprising sequences SEQ ID NOs:15-97, respectively.

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# INTERNATIONAL SEARCH REPORT

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PCT/US2004/014932

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 02086122	A2	31-10-2002	NONE