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Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

15 September 2011

(54) Title: HIV-1 ANTIBODIES

(57) Abstract: The present invention relates, in general, to HIV-1 specific antibodies and, in particular, to broadly neutralizing HIV-1 specific antibodies that target the gp41 membrane-proximal external region (MPER). The present invention also relates to a cell culture system, more specifically, to a method of rendering chronic lymphocytic leukemia B-cells immortal and to a method of isolating anti-viral antibodies from clones of such cells.



WO 2011/034582 A3

A. CLASSIFICATION OF SUBJECT MATTER*A61K 39/42(2006.01)i, C07K 16/10(2006.01)i, C12N 5/07(2010.01)i, A61P 31/18(2006.01)i*

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)

A61K 39/42; C12N 5/16; A61K 39/395; A61K 38/17

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: gp41 MPER, HIV, neutralising antibody, immortalization, B-CLL, EBV, feeder

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	XIAOYING SHEN et al., In vivo gp41 antibodies targeting the 2F5 monoclonal antibody epitope mediate human immunodeficiency virus type 1 neutralization breadth. Journal of virology, 83(8): 3617 - 3625 (April 2009) see abstract; p. 3618, right-hand column; table 1; discussion.	6,7
A	WO 2006/110831 A2 (DUKE UNIVERSITY et al.) 19 October 2006 see claims 1, 4, 33.	6,7
A	US 2002/0081723 A1 (PETER BRAMS) 27 June 2002 see claims 1, 13 - 16.	8,9
A	VIDAR WENDEL-HANSEN et al., Epstein-Barr virus (EBV) can immortalize B-CLL cells activated by cytokines. Leukemia, 8(3): 476 - 484 (1994). see abstract; discussion.	8,9
A	US 2004/0198661 A1 (KATHERINE S. BOWDISH and JOHN MCWHIRTER) 07 October 2004 see paragraphs [0006] and [0048].	8,9

 Further documents are listed in the continuation of Box C. 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 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 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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/002515

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2010/002515

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of :

a. a sequence listing filed or furnished

- on paper
 in electronic form

b. time of filing or furnishing

- contained in the international application as filed
 filed together with the international application in electronic form
 furnished subsequently to this Authority for the purposes of search

2. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

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.: 1 - 5
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 1 - 5 pertain to methods for treatment of the human body by surgery or therapy, as well as diagnostic methods, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
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 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:

- I. Claims 6 and 7 directed to an isolated antibody with specific CDRs, or a composition comprising said antibody.
- II. Claims 8 and 9 directed to a method of generating immortalized clones of B-CLL cells.

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 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.