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[Continued on next page]

(54) Title: COMPOSITIONS AND METHODS FOR THE THERAPY AND DIAGNOSIS OF CYTOMEGALOVIRUS INFECTIONS

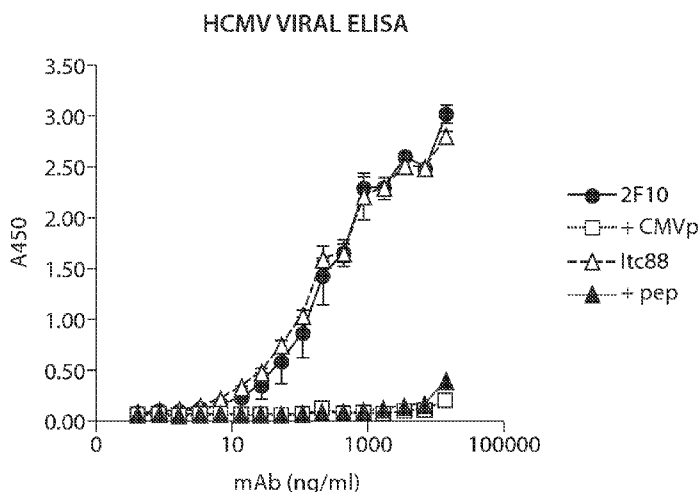


Fig. 2

(57) Abstract: The present invention provides novel anti-cytomegalovirus antibodies recognizing the neutralizing epitope AD2-S1 of gB and related compositions and methods. These antibodies may be used in the diagnosis, prevention, and treatment of cytomegalovirus infection.

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— *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))*

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12 November 2009

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2009/036706

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. C07K16/08 A61K39/395 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)  
C07K

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, CHEM ABS Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 93/21952 A (BIOINVENT INT AB [SE]; BORREBAECK CARL [SE]; OHLIN MATS [SE]) 11 November 1993 (1993-11-11) claim 1	1-17
X	MCLEAN GARY R ET AL: "Recognition of human cytomegalovirus by human primary immunoglobulins identifies an innate foundation to an adaptive immune response" JOURNAL OF IMMUNOLOGY, AMERICAN ASSOCIATION OF IMMUNOLOGISTS, US, vol. 174, no. 8, 1 April 2005 (2005-04-01), pages 4768-4778, XP002505839 ISSN: 0022-1767 the whole document	1-17

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 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.
- \*Z\* document member of the same patent family

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International application No  
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SCHRADER ET AL: "Location, location, timing: Analysis of cytomegalovirus epitopes for neutralizing antibodies" IMMUNOLOGY LETTERS, ELSEVIER BV, NL, vol. 112, no. 1, 15 September 2007 (2007-09-15), pages 58-60, XP022218591 ISSN: 0165-2478 the whole document</p>	1-17
X	<p>BABCOOK J S ET AL: "A NOVEL STRATEGY FOR GENERATING MONOCLONAL ANTIBODIES FROM SINGLE, ISOLATED LYMPHOCYTES PRODUCING ANTIBODIES OF DEFINED SPECIFICITIES" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE, WASHINGTON, DC, US, vol. 93, no. 15, 23 July 1996 (1996-07-23), pages 7843-7848, XP000608647 ISSN: 0027-8424 the whole document</p>	1-17
X	<p>OHLIN MATS ET AL: "Fine specificity of the human immune response to the major neutralization epitopes expressed on cytomegalovirus gp58/116 (gB), as determined with human monoclonal antibodies" JOURNAL OF VIROLOGY, vol. 67, no. 2, 1993, pages 703-710, XP002544755 ISSN: 0022-538X the whole document</p>	1-17

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2009/036706

## 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.:  
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:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2.  As all searchable claims could be searched without effort justifying an 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.:

### 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.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

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

1. claims: 1-17 (all partially)

anti-CMV antibody comprising a VH region comprising SEQ ID Nos 36, 37 and 38 and a VL region comprising SEQ ID Nos 43, 44 and 45 according to Kabat numbering or comprising a VH region comprising SEQ ID Nos 39, 40 and 38 and a VL region comprising SEQ ID Nos 43, 44 and 45 according to Chothia numbering (antibody I); therapeutic and diagnostic applications of the antibody

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2. claims: 1-17 (all partially)

anti-CMV antibody comprising a VH region comprising SEQ ID Nos 48, 49 and 50 and a VL region comprising SEQ ID Nos 53, 44 and 54 according to Kabat numbering or comprising a VH region comprising SEQ ID Nos 118, 51 and 50 and a VL region comprising SEQ ID Nos 53, 44 and 54 according to Chothia numbering (antibody II); therapeutic and diagnostic applications of the antibody

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3. claims: 1-17 (all partially)

anti-CMV antibody comprising a VH region comprising SEQ ID Nos 57, 58 and 59 and a VL region comprising SEQ ID Nos 43, 64 and 65 according to Kabat numbering or comprising a VH region comprising SEQ ID Nos 60, 61 and 59 and a VL region comprising SEQ ID Nos 43, 64 and 65 according to Chothia numbering (antibody III); therapeutic and diagnostic applications of the antibody

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4. claims: 1-17 (all partially)

anti-CMV antibody comprising a VH region comprising SEQ ID Nos 36, 68 and 69 and a VL region comprising SEQ ID Nos 74, 75 and 76 according to Kabat numbering or comprising a VH region comprising SEQ ID Nos 70, 71 and 69 and a VL region comprising SEQ ID Nos 74, 75 and 76 according to Chothia numbering (antibody IV); therapeutic and diagnostic applications of the antibody

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5. claims: 1-17 (all partially)

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

anti-CMV antibody comprising a VH region comprising SEQ ID Nos 36, 79 and 80 and a VL region comprising SEQ ID Nos 74, 75 and 76 according to Kabat numbering or comprising a VH region comprising SEQ ID Nos 70, 71 and 80 and a VL region comprising SEQ ID Nos 74, 75 and 76 according to Chothia numbering (antibody V); therapeutic and diagnostic applications of the antibody

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**6. claims: 1-17 (all partially)**

anti-CMV antibody comprising a VH region comprising SEQ ID Nos 85, 86 and 87 and a VL region comprising SEQ ID Nos 43, 92 and 93 according to Kabat numbering or comprising a VH region comprising SEQ ID Nos 88, 89 and 87 and a VL region comprising SEQ ID Nos 43, 92 and 93 according to Chothia numbering (antibody VI); therapeutic and diagnostic applications of the antibody

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/036706

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9321952	A	AU 4274293 A SE 9201281 A	29-11-1993 24-10-1993
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