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(71) Applicant (for all designated States except US): **XENCOR, INC.** [US/US]; 111 West Lemon Avenue, Monrovia, CA 91016 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DAHIYAT, Bassil, I.** [US/US]; 3829 Luna Court, Alta Dena, CA 91001 (US). **BERNETT, Matthew, J.** [US/US]; 111 Lemon Street, Monrovia, CA 91016 (US). **LAZAR, Gregory, A.** [US/US]; 750 Arcadia Avenue, Arcadia, CA 91007 (US).

(74) Agents: **SILVA, Robin, M.** et al.; Morgan Lewis & Bockius LLP, One Market Street, Spear Street Tower, San Francisco, CA 94105 (US).

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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))
- with sequence listing part of description (Rule 5.2(a))

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3 May 2012

(54) Title: ANTIBODIES WITH MODIFIED ISOELECTRIC POINTS

(57) Abstract: The invention relates generally to compositions and methods for altering the isoelectric point of an antibody, and in some cases, resulting in improved plasma pharmacokinetics, e.g. increased serum half-life in vivo.



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## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2011/046041

A. CLASSIFICATION OF SUBJECT MATTER  
 INV. C07K16/22 C07K16/00  
 ADD.

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, Sequence Search, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2009/086320 A1 (XENCOR INC [US]; CHAMBERLAIN AARON [US]; DAHIYAT BASSIL [US]; DESJARLA) 9 July 2009 (2009-07-09) the whole document, especially SEQ ID NO: 9, 1 and examples 1, 5 and 7 -----	1-6,8-10



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.

"&" document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040,  
 Fax: (+31-70) 340-3016

Authorized officer

Bayer, Annette

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2011/046041

## 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 all searchable 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.:

1-6, 8-10(all partially)

### 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.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/046041

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009086320	A1	09-07-2009	
		AU 2008345242 A1	09-07-2009
		CA 2703997 A1	09-07-2009
		CN 101910199 A	08-12-2010
		EP 2235059 A1	06-10-2010
		JP 2011507963 A	10-03-2011
		KR 20100099179 A	10-09-2010
		WO 2009086320 A1	09-07-2009
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

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

1. claims: 1-6, 8-10(all partially)

An antibody comprising a variant heavy chain constant domain having the formula as recited in present claim 1 wherein X119 is S, said variant heavy chain constant domain comprises at least 6 mutations compared to SEQ ID NO:2, said variant heavy chain constant domain is not SEQ ID NO: 3 and wherein the numbering is according to EU index.

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2-8145060. claims: 1-10(partially)

Any further antibody variant heavy chain constant domain variants falling under the scope of present claim 1.

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