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(54) СВЯЗЫВАЮЩИЕ CSF1R АНТИТЕЛА

(31) 61/331,177

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(57) Предлагаются антитела, связывающие CSF1R. Предлагаются также тяжелые и легкие цепи антител, способные формировать антитела, связывающие CSF1R. Предлагаются также полинуклеотиды, кодирующие антитела к CSF1R. Предлагаются также полинуклеотиды, кодирующие тяжелые и легкие цепи антител. Предлагаются способы лечения с использованием антител к CSF1R. К таким способам относятся (без ограничения) способы лечения ревматоидного артрита, разрежения кости и рассеянного склероза.

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INTERNATIONAL SEARCH REPORT

International application n°
PCT/US 11/35231

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61K 39/395; C07K 16/00; C07H 21/04; A61K 39/395 (2011.01)
USPC - 424/145.1

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(8): A61K 39/395; C07K 16/00; C07H 21/04; A61K 39/395
USPC: 424/145.1Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 530/388.1, 389.2; 536/23.53; 424/158.1

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

PubWEST (DB=PGPB,USPT,USOC,EPAB,JPAB; PLUR=NO; OP=ADJ), Google Scholar, Google Patents

Search Terms Used: antibody\$, heavy chain, light chain, colony stimulating factor 1 receptor, CSF1R, CSF-1, CSF-1R, nucleotid\$, polypeptid\$, sequenc\$

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---------------|--|--|
| Y --- A | WO 2009/112245 A1 (Haegel et al.) 17 September 2009 (17.09.2009) esp: abstract, paras [0013], [0021], [0034]-[0035]. | 11, 57 ----- 1-10, 12-15, 47-51, 58-61, 70/22-25, 71/22-25 |
| Y --- A | US 2002/0193575 A1 (Holmes et al.) 19 December 2002 (19.12.2002) esp: abstract, para [0085], SEQ ID NO: 2. | 11, 57 ----- 12-15, 20-25, 58-61, 70/22-25, 71/222-5 |
| A | US 2007/0072797 A1 (Robinson et al.) 29 March 2007 (29.03.2007) esp: para [0154], Fig. 3, SEQ ID NO: 19. | 1-10, 22-25, 47-51, 70/22-25, 71/22-25 |
| A | US 2008/0219971 A1 (Smith et al.) 11 September 2008 (11.09.2008) esp: para [0133], SEQ ID NO: 37 | 22-25, 70/22-25, 71/22-25 |
| A | US 2003/0103976 A1 (Serizawa et al.) 5 June 2003 (05.06.2003) esp: SEQ ID NO: 107, claim 26. | 22-25, 70/22-25, 71/22-25 |

 Further documents are listed in the continuation of Box C.

* 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

"I" 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

23 December 2011 (22.12.2011)

Date of mailing of the international search report

31 JAN 2012

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application n°
PCT/US 11/35231

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.: 29-46, 52-56, 62, 69 and 72-83
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:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

---continued on first extra 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 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.:

1-15, 22-25, 47-51, 70/22-25 and 71/22-25 restricted to SEQ ID NOs: 9, 10, 39 and 46.

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.

INTERNATIONAL SEARCH REPORT

International application n°
PCT/US 11/35231

Continuation of Box III Observations where unity of invention is lacking:

Group I+ claims 1-28, 47-61, 63-68 and 70-71 drawn to an isolated antibody, wherein the antibody binds to colony stimulating factor 1 receptor (CSF1R), comprising a heavy chain and a light chain, wherein the heavy chain comprises a sequence that is at least 90% identical to a sequence selected from SEQ ID NOs: 9, 11, 13, and 39 to 45; wherein the light chain comprises a sequence that is at least 90% identical to a sequence selected from SEQ ID NOs: 10, 12, 14, and 46 to 52. The first invention is restricted to an isolated antibody of claim 22 (a) comprising a heavy chain comprising a sequence that is at least 95% identical to SEQ ID NO: 9 and a light chain comprising a sequence that is at least 95% identical to SEQ ID NO: 10. Should an additional fee(s) be paid, Applicant is invited to elect an additional sequence(s) to be searched. The exact claims searched will depend on Applicant's election.
[NOTE: Claim 27 is excluded from Group I, because they are drawn to a non-elected subject matter.]

The inventions listed as Group I+ do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions of Group I+ share the technical feature of an isolated antibody, wherein the antibody binds to colony stimulating factor 1 receptor (CSF1R), comprising a heavy chain and a light chain. However, this shared technical feature does not represent a contribution over prior art as being anticipated by WO 2009/112245 A1 to Haegel et al. (hereinafter 'Haegel'). Haegel discloses an isolated antibody, wherein the antibody binds to colony stimulating factor 1 receptor (CSF1R), comprising a heavy chain and a light chain (para [0013], [0021], [0034]-[0035], the term 'variable region' refers to the variable region of the light chain or heavy chain). In addition, UniProtKB/Swiss-Prot ID KV3AD_mouse (02 March 2010) (retrieved on 21 September 2011; retrieved from the internet<URL: <http://www.uniprot.org/uniprot/P01665.txt?version=69>>) (hereinafter 'KV3AD') discloses immunoglobulin kappa chain that has 92.6% match to claimed SEQ ID NO: 10. As said composition was known in the art at the time of the invention, this cannot be considered a special technical feature that would otherwise unify the groups.

Group I+ therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.