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11 December 2008

(54) Title: ANTIBODIES SPECIFIC FOR THE COMPLEX OF INTERLEUKIN-6 AND THE INTERLEUKIN-6 RECEPTOR

(57) Abstract: Binding members, especially antibody molecules that bind the IL-6 :IL-6Ra complex formed by IL-6 and IL-6Ra, and do not bind either IL-6 or IL-6Ra alone. The binding members may have greater specificity for inhibiting pathological effects of IL-6 rather than beneficial effects of IL-6, as compared with binding members that bind IL-6 or IL-6Ra outside the IL-6: IL-6Ra complex.



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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER

INV. C07K16/24 C07K16/28 C12N15/13 A61K39/395

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, CHEM ABS Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	BOULANGER MARTIN J ET AL: "HEXAMERIC STRUCTURE AND ASSEMBLY OF THE INTERLEUKIN-6/IL-6 ALPHA-RECEPTOR/GP130 COMPLEX" SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, US, vol. 300, no. 5628, 27 June 2003 (2003-06-27), pages 2101-2104, XP009082977 ISSN: 0036-8075 the whole document	1-16,18, 20-33
Y	EP 1 074 268 A (CHUGAI PHARMACEUTICAL CO LTD [JP]; KISHIMOTO TADAMITSU [JP]) 7 February 2001 (2001-02-07) the whole document	1-16,18, 20-33

☒ 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

Date of the actual completion of the international search

17 April 2008

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29/10/2008

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PCT/GB2007/004534

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 536 012 A (JURIDICAL FOUNDATION [JP] CHEMO SERO THERAPEUT RES INST [JP]) 1 June 2005 (2005-06-01) the whole document	1-16,18, 20-33
Y	NISHIMOTO N ET AL: "Inhibition of IL-6 for the treatment of inflammatory disease" CURRENT OPINION IN PHARMACOLOGY, ELSEVIER SCIENCE PUBLISHERS,, NL, vol. 4, 2004, pages 386-391, XP003017942 ISSN: 1471-4892 the whole document	1-16,18, 20-33
A	EP 0 934 953 A (BOEHRINGER MANNHEIM CORP [US]) 11 August 1999 (1999-08-11) claim 1	1-50, 53-55
A	LITTLE M ET AL: "Of mice and men: hybridoma and recombinant antibodies" IMMUNOLOGY TODAY, ELSEVIER PUBLICATIONS, CAMBRIDGE, GB, vol. 21, no. 8, 1 August 2000 (2000-08-01), pages 364-370, XP004215163 ISSN: 0167-5699 page 367, column 1, paragraph 1	1-50, 53-55
P,X	WO 2007/076927 A (MERCK PATENT GMBH [DE]; WAY JEFFREY C [US]; GILLIES STEPHEN D [US]; LO) 12 July 2007 (2007-07-12) the whole document	1-50, 53-55

INTERNATIONAL SEARCH REPORT

International application No.
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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:

Although claims 27 and 28 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
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.:

1-50, 53, 54, 55

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: 1-50,53,54,55

Claims directed to antibodies (binding members) specifically recognizing the complex between IL-6 and the IL-6 receptor alpha; nucleic acids encoding these antibodies, etc.

2. claims: 51,52

Claims directed to a method of selecting for antibodies which specifically bind to a complex but not to the individual members of the complex

INTERNATIONAL SEARCH REPORT

International application No
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