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HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,
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- with international search report (Art. 21(3))
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24 September 2009

(54) Title: CADHERIN-11 ECL DOMAIN ANTAGONISTS FOR TREATING INFLAMMATORY JOINT DISORDERS

(57) Abstract: The present invention relates to Cadherin-11 antagonists and compositions comprising Cadherin-11 antagonists. The invention also relates to methods for treating inflammatory joint disorders, such as rheumatoid arthritis, in a mammalian subject by administering a therapeutically effective amount of a Cadherin-11 antagonist.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/000162

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07K16/28 A61K38/17

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 A61K

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, BIOSIS, WPI 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 99/57149 A (ADHEREX TECHNOLOGIES INC [CA]; BLASCHUK OREST W [CA]; GOUR BARBARA J []) 11 November 1999 (1999-11-11) abstract; claims 16,20; example 2 page 130, paragraph 2 page 131, paragraph 2 page 138, line 15 page 142, line 9 ----- -/--	1-9, 19-23, 25-27, 29-32, 34-39, 41, 43-46, 49-55, 60,61



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.

G 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/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/000162

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/048411 A (ADHEREX TECHNOLOGIES INC [CA]; BLASCHUK OREST W [CA]; MICHAUD STEPHANI) 10 June 2004 (2004-06-10) claims 45,51,52,66 abstract page 112, paragraph 2 page 121, last paragraph page 133, line 8	1-9, 19-23, 25-32, 34-39, 41, 43-46, 50, 52-55, 60,61
A	WO 01/17557 A (BRIGHAM & WOMENS HOSPITAL [US]) 15 March 2001 (2001-03-15) abstract claims 1-49; figure 3	1-9, 19-23, 25-39, 41-61
A	KIENER HANS P ET AL: "Building the synovium: cadherin-11 mediates fibroblast-like synoviocyte cell-to-cell adhesion." ARTHRITIS RESEARCH & THERAPY 2005, vol. 7, no. 2, 2005, pages 49-54, XP002528083 ISSN: 1478-6362 abstract	1-9, 19-23, 25-39, 41-61
A	KIENER HANS P ET AL: "Cadherin-11 induces rheumatoid arthritis fibroblast-like synoviocytes to form lining layers in vitro." THE AMERICAN JOURNAL OF PATHOLOGY MAY 2006, vol. 168, no. 5, May 2006 (2006-05), pages 1486-1499, XP002528084 ISSN: 0002-9440 abstract	1-9, 19-23, 25-39, 41-61
A	VALENCIA XAVIER ET AL: "Cadherin-11 provides specific cellular adhesion between fibroblast-like synoviocytes." THE JOURNAL OF EXPERIMENTAL MEDICINE 20 DEC 2004, vol. 200, no. 12, 20 December 2004 (2004-12-20), pages 1673-1679, XP002528085 ISSN: 0022-1007 abstract	1-9, 19-23, 25-39, 41-61

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INTERNATIONAL SEARCH REPORT

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.
A	LEE DAVID M ET AL: "Cadherin-11 in synovial lining formation and pathology in arthritis." SCIENCE (NEW YORK, N.Y.) 16 FEB 2007, vol. 315, no. 5814, 16 February 2007 (2007-02-16), pages 1006-1010, XP002528086 ISSN: 1095-9203 abstract	1-9, 19-23, 25-39, 41-61

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/000162

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.: 56-59
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:
see FURTHER INFORMATION sheet PCT/ISA/210
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 reportcovers 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.:
1-9 (in full), 19-23, 25-39
41-61 (only as far as and if relating to invention 1)

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.

Continuation of Box II.2

Claims Nos.: 56-59

Claims 56-59 as well claims depending on them are unclear in the sense of Art. 6 PCT as far as relating to Ab characterized by an in-house designation, i.e. H1M1, H14 hybridomas. In order to render these claims clear, either nucleic acid/protein sequence data of said proteins or the appropriate deposit numbers at an International Microorganism Depositary Authorities according to the Budapest treaty should be mentioned in the claims and the corresponding certificates provided, taking into consideration the requirements of Art. 34 PCT. At present, no meaningful search is possible.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2)PCT declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-9 (in full), 19-23, 25-39, 41-61 (only as far as and if relating to invention 1)

a cadherin 11 (CAD11 = osteoblast-cadherin) antagonist that specifically binds an EC1 domain of a mammalian CAD11 protein, wherein the cadherin-11 antagonist inhibits aggregation of cells that express said mammalian Cad11 protein and uses thereof

2. claims: 10-18 (in full), 19, 24, 37, 40 (only as far as and if relating to invention 2)

a fusion protein comprising at least a portion of a mammalian Ig protein and a portion of a hCAD11 extracellular region that includes aa 54-90 of SeqID 2, wherein the portion of the hCAD11 extracellular region does not include the entire hCAD11 extracellular region consisting of aa 1-609 of SeqID-2

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9957149	A	11-11-1999	AU 759144 B2	03-04-2003
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			EP 1207905 A1	29-05-2002