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(81) **Designated States** (unless otherwise indicated, for every

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(88) **Date of publication of the international search report:**

24 July 2008

(54) **Title:** METHODS AND COMPOSITIONS USING IMMUNOMODULATORY COMPOUNDS FOR THE TREATMENT AND MANAGEMENT OF SPIROCHETE AND OTHER OBLIGATE INTRACELLULAR BACTERIAL DISEASES

(57) **Abstract:** Methods of treating, preventing and/or managing a spirochete and/or other obligate intracellular bacterial disease or disorder are disclosed. Specific methods encompass the administration of an immunomodulatory compound alone or in combination with a second active agent.



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INTERNATIONAL SEARCH REPORT

International application No PCT/US2007/022388

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61K31/00 A61K31/454 A61K45/06 A61P31/04

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)

A61K A61P

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document with indication where appropriate of the relevant passages	Relevant to claim No
X	WO 03/014315 A (CHILDRENS MEDICAL CENTER [US]; ENTREMED INC [US]) 20 February 2003 (2003-02-20) page 2, line 21 - page 3, line 24 page 14, line 11 - page 25, line 7 page 30, line 22 - page 31, line 19 -----	1-15
X	WO 01/43743 A (CELGENE CORP [US]) 21 June 2001 (2001-06-21) page 9, line 34 - page 10, line 16; claim 10; examples 4.3.1,5.1 ----- -/--	1-15

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

¹E" earlier document but published on or after the international filing date

¹L" 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

¹P' 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 May 2008

Date of mailing of the international search report

06/06/2008

Name and mailing address of the ISA/

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Authorized officer

Paul Soto, Raquel

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/022388

C(Continuatloπ). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	<p>WO 2004/103274 A (CELGENE CORP [US]; ZELDIS JEROME B [US]) 2 December 2004 (2004-12-02) page 8, line 13 - page 12, line 11 page 14, last paragraph - page 15, paragraph 1 page 25, lines 27-34 page 29, paragraph 2 page 31, paragraph 3; claims 7-9,27-31</p>	1-17
X	<p>WO 02/064083 A (CHILDRENS MEDICAL CENTER [US]; TRESTON ANTHONY [US]; SHAH JAMSHED H [U] 22 August 2002 (2002-08-22) page 2, line 24 - page 3, line 25 page 13, lines 6-14 page 22, line 7 - page 23, line 10; claim 8</p>	1-15
X	<p>WO 2004/043377 A (CELGENE CORP [US]; ZELDIS JEROME B [US]) 27 May 2004 (2004-05-27) page 8, line 17 - page 11, line 25 page 14, lines 7-13 page 23, lines 26-31 page 29, lines 9-29 page 32, lines 1-20 page 49, lines 13-25; claims 7-17,28-31</p>	1-17
X	<p>WO 03/097052 A (CELGENE CORP [US]) 27 November 2003 (2003-11-27) page 8, line 3 - page 12, line 3 page 16, lines 27-32 page 22, lines 9-24 page 24, lines 21-31 page 41, lines 3-11 claims 7-17,30-33</p>	1-17

FURTHER INFORMATION CONTINUED FROM PCT/ASA/ 210

Continuation of Box II.1

Although claims 1-15 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.

Continuation of Box II.1

Claims Nos.: 1-15

Rule 39.1(1v) PCT - Method for treatment of the human or animal body by therapy

Continuation of Box II.2

Claims Nos.: 1-7, 16-17

Present claims 1-7 and 16-17 relate to compounds functionally defined as "immunomodulatory compounds". This functional definition covers an extremely large number of possible compounds. Support and disclosure in the sense of Article 6 and 5 PCT is to be found however for only a smaller proportion of the compounds. The non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search of claims 1-7 and 16-17 (PCT Guidelines 9.19 and 9.23).

The search of claims 1-7 and 16-17 was restricted to those claimed compounds which appear to be supported and a generalisation of their structural formulae, namely to the compounds structurally defined in dependent claims 8-15.

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

FURTHER INFORMATION CONTINUED FROM POT/ISA/ 210

overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/022388

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.: 1-15
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210

2. Claims Nos.: 1-7, 16-17
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:

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/022388

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