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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))*

(88) Date of publication of the international search report:
19 May 2011

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(54) Title: HETEROCYCLIC ANTIVIRAL COMPOUND

(57) Abstract: Compounds having the formula I wherein R^1, R^2, R^3, R^4, and R^5 are as defined herein are Hepatitis C virus NS5b polymerase inhibitors. Also disclosed are compositions and methods for treating an HCV infection and inhibiting HCV replication.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/058681

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07D207/26 C07D207/44 C07D233/34 C07D237/14 C07D239/10
C07D239/36 C07D241/18 C07D249/12 C07D275/06 C07D285/16
A61K31/4166 A61K31/4196 A61K31/425 A61K31/4412 A61K31/4965

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)
C07D

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, 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 2009/039135 A1 (ABBOTT LAB [US]; DONNER PAMELA L [US]; RANDOLPH JOHN T [US]; KRUEGER A) 26 March 2009 (2009-03-26) claims; examples -----	1-20
X	WO 2009/039127 A1 (ABBOTT LAB [US]; WAGNER ROLF [US]; TUFANO MICHAEL D [US]; STEWART KENT) 26 March 2009 (2009-03-26) page 31, formula I-L7; page 32, formulae IA-L7, IB-L7; page 34, formulae I-L10, IA-L10; IB-L10; page 74-75, compounds IB-L0-2.6, IB-L0-2.19, IB-L0-2.48; page 269, example 77claims; examples -----	1-20
A	WO 2004/041799 A1 (ASTRAZENECA AB [SE]; ASTRAZENECA UK LTD [GB]; BIRCH ALAN MARTIN [GB];) 21 May 2004 (2004-05-21) claims; example 58 -----	1
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[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
21 March 2011	29/03/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Beyss-Kahana, Ellen

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/058681

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2004/050619 A1 (GLAXO GROUP LTD [GB]; DEMONT EMMANUEL H [GB]; FALLER ANDREW [GB]; MACP) 17 June 2004 (2004-06-17) page 117, compound A102 -----	1
A	WO 01/05785 A1 (BAYER AG [DE]; ANDREE ROLAND [DE]; DREWES MARK WILHELM [DE]; DAHMEN PE) 25 January 2001 (2001-01-25) table 1, compound 5claims -----	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2010/058681

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.:

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: 2-10(completely); 1, 11-20(partially)

   A compound according to present formula (I) wherein R2 means (a), (b)

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2. claim: 1(partially)

   A compound according to present formula (I) wherein R2 means (c)

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3. claims: 1, 11-19(all partially)

   A compound according to present formula (I) wherein R2 means (d), (e)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2010/058681

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