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- 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:
1 April 2010

(54) Title: SUBSTITUTED ALKYL PYRIMIDIN-4-ONE DERIVATIVES

(57) Abstract: A pyrimidone derivative represented by formula (I) or a salt thereof, or a solvate thereof or a hydrate thereof (I), wherein, X represents a methylene, NH, a nitrogen atom substituted by a C(O)-O- (C₁₋₆-alkyl) group; R1 represents a 2, 3 or 4-pyridine ring or a 2, 4 or 5-pyrimidine ring, the ring being optionally substituted by a C₁₋₆ alkyl group, a C₁₋₆ alkoxy group or a halogen atom; R2 represents a hydrogen atom, a C₁₋₆ alkyl group or a halogen atom; R3 represents a C₁₋₆ alkyl group optionally substituted, R4 represents a hydrogen atom, a halogen atom, a hydroxyl group, a C₁₋₆ alkyl group; m represents 1 to 2 when X is a methylene or m represents 2 when X is NH, a nitrogen atom substituted by a C(O)-O-(C₁₋₆-alkyl) group; in the form of a free base or of an addition salt with an acid. Use in therapeutic



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D471/04 A61K31/519 A61P25/00

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 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, CHEM ABS Data, BEILSTEIN Data, 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	EP 1 790 649 A (SANOFI AVENTIS [FR]; MITSUBISHI PHARMA CORP [JP]) 30 May 2007 (2007-05-30) page 25; claim 1 page 28; claims 8,10,12 -----	1-17
A	US 4 804 663 A (KENNIS LUDO E J [BE] ET AL) 14 February 1989 (1989-02-14) column 16; claim 1 -----	1-17
A	FR 2 413 389 A (CHINOIN GYOGYSZER ES VEGYESZET [HU]) 27 July 1979 (1979-07-27) page 53; claim 1 -----	1-17
A	EP 1 460 076 A (SANOFI SYNTHELABO [FR]; MITSUBISHI PHARMA CORP [JP]) 22 September 2004 (2004-09-22) page 12; claim 1 -----	1-17



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.

"&" document member of the same patent family

Date of the actual completion of the international search

26 October 2009

Date of mailing of the international search report

15/02/2010

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INTERNATIONAL SEARCH REPORT

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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:
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.:

see annex

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 (part), 2-3, 4 (part)- 17 (part)

directed to compound of formula (I) wherein R4 represents hydrogen and its related subject-matter

2. claims: Claims 1 (part), 4 (part)- 17 (part)

directed to compound of formula (I) wherein R4 represents a halogen atom and its related subject-matter

3. claims: Claims 1 (part), 4 (part)- 17 (part)

directed to compound of formula (I) wherein R4 represents a hydroxyl group and its related subject-matter

4. claims: Claims 1 (part), 4 (part)- 17 (part)

directed to compound of formula (I) wherein R4 represents a C1-6 alkyl group and its related subject-matter

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2009/006568

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