

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
23 April 2009 (23.04.2009)

PCT

(10) International Publication Number  
**WO 2009/050201 A3**

(51) International Patent Classification:

C07D 233/70 (2006.01) A61K 31/4178 (2006.01)  
C07D 413/12 (2006.01) A61P 9/00 (2006.01)  
C07D 405/12 (2006.01) A61P 3/00 (2006.01)  
A61K 31/4166 (2006.01) A61P 25/00 (2006.01)

(21) International Application Number:

PCT/EP2008/063873

(22) International Filing Date:

15 October 2008 (15.10.2008)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

07118616.7 16 October 2007 (16.10.2007) EP

(71) Applicant (for all designated States except US): **NOVARTIS AG** [CH/CH]; Lichtstrasse 35, CH-4056 Basel (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ORAIN, David** [FR/FR]; 15, rue du Schweiberg, F-68220 Hésingue (FR). **NOZULAK, Joachim** [DE/DE]; In der Ziegelei 1, 79423 Heitersheim (DE).

(74) Agent: **VOEGELI-LANGE, Regina**; Novartis Pharma AG, Patent Department, CH-4002 Basel (CH).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

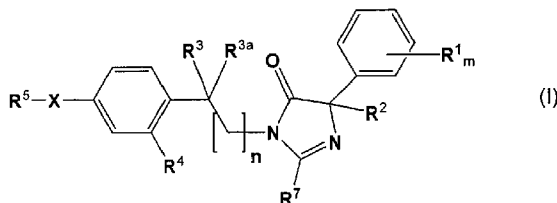
Published:

— 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:

13 August 2009

(54) Title: 4-PHENYL-5-OXO-IMIDAZOLE DERIVATIVES, PHARMACEUTICAL COMPOSITIONS AND USES THEREOF



(57) Abstract: The invention relates to compound of the formula (I) wherein the substituents are as defined in the specification; in free base form or in acid addition salt form; to its preparation, to its use as medicament and to medicaments comprising it.



WO 2009/050201 A3

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2008/063873

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. C07D233/70 C07D413/12 C07D405/12 A61K31/4166 A61K31/4178  
A61P9/00 A61P3/00 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, BEILSTEIN 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. |
|-----------|--|-----------------------|
| A         | WO 2006/065277 A (SCHERING CORP [US]; PHARMACOPEIA DRUG DISCOVERY [US]; ZHU ZHAONING [US]) 22 June 2006 (2006-06-22) abstract; pages 383-387 and 400; claims 2-15<br>----- | 1,5-10                |
| A         | US 5 270 317 A (BERNHART CLAUDE [FR] ET AL) 14 December 1993 (1993-12-14) column 1, line 32 - line 37; claims 1-15; examples 1-9<br>-----                                  | 1,5-10                |
| A         | WO 2004/058727 A (BAYER PHARMACEUTICALS CORP [US]; CHEN YUANWEI [US]; O'CONNOR STEPHEN J) 15 July 2004 (2004-07-15) claims 1,42; examples 1-10<br>-----<br>-/--            | 1,5-10                |

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.
- \*S\* document member of the same patent family

Date of the actual completion of the international search

8 June 2009

Date of mailing of the international search report

17/06/2009

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

Authorized officer  
  
Rufet, Jacques

# INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/063873

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|-----------|---|-----------------------|
| A         | US 2007/027199 A1 (MALAMAS MICHAEL S [US] ET AL) 1 February 2007 (2007-02-01)<br>page 1, paragraph 019; claims 1,11-15;<br>examples 49,69 | 1,5-10                |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/EP2008/063873

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)   | Publication<br>date  |
|---|---------------------|--|--|
| WO 2006065277 A                           | 22-06-2006          | AR 050160 A1<br>AU 2005317204 A1<br>BR PI0519034 A2<br>CA 2591033 A1<br>CN 101115482 A<br>EP 1838304 A2<br>JP 2008523059 T<br>KR 20070106689 A<br>US 2007072852 A1<br>US 2006111370 A1 | 04-10-2006<br>22-06-2006<br>23-12-2008<br>22-06-2006<br>30-01-2008<br>03-10-2007<br>03-07-2008<br>05-11-2007<br>29-03-2007<br>25-05-2006 |
| US 5270317 A                              | 14-12-1993          | HU 9500555 A3  | 30-10-1995   |
| WO 2004058727 A                           | 15-07-2004          | AU 2003299791 A1   | 22-07-2004   |
| US 2007027199 A1                          | 01-02-2007          | NONE   |  |