

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 July 2010 (15.07.2010)

PCT

(10) International Publication Number
WO 2010/079497 A3

(51) International Patent Classification:
C07D 213/56 (2006.01)

(21) International Application Number:
PCT/IN2009/000034

(22) International Filing Date:
12 January 2009 (12.01.2009)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): **HET-ERO RESEARCH FOUNDATION** [IN/IN]; Plot No. B-80 & 81, A.P.I.E., Balanagar, Hyderabad 50018, Andhrapadesh (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PARTHASARADHI REDDY, Bandi** [IN/IN]; Hetero House, 8-3-166/7/1 Erragadda, Hyderabad 500 018, Andhrapadesh (IN). **RATHNAKAR REDDY, Kura** [IN/IN]; Hetero Research Foundation, Plot No. B-80 & 81, A.P.I.E., Balanagar, Hyderabad 500 018, Andhrapadesh (IN). **RAJI REDDY, Rapolu** [IN/IN]; Hetero Research Foundation, Plot No. B-80 & 81, A.P.I.E., Balanagar, Hyderabad 500 018, Andhrapadesh (IN). **MURALIDHARA REDDY, Dasari** [IN/IN]; Hetero Research Foundation, Plot No. B-80 & 81, A.P.I.E., Balanagar, Hyderabad 500 018, Andhrapadesh (IN). **SUBASH CHANDER REDDY, Kesireddy** [IN/IN]; Hetero Research Foundation, Plot No. B-80 & 81, A.P.I.E., Balanagar, Hyderabad 500 018, Andhrapadesh (IN).

(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, MK, 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))
- of inventorship (Rule 4.17(iv))

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:
17 November 2011

(54) Title: NOVEL POLYMORPH OF ATAZANAVIR SULFATE

(57) Abstract: The present invention provides a novel crystalline form of atazanavir sulfate, process for its preparation and to pharmaceutical composition containing it. In accordance with the present invention atazanavir sulfate was dissolved in methanol, to the solution was added ethyl acetate, the solid obtained was collected by filtration and dried to give atazanavir sulfate crystalline form H1.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN 2009/000034

A. CLASSIFICATION OF SUBJECT MATTER IPC ⁸ : C07D 213/56 (2006.01) 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) IPC ⁸ : 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 practicable, search terms used) Wpi, Epodoc, Registry, CA, Pubchem		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 1999/036404 A1 (SQUIBB BRISTOL MYERS CO) 22 July 1999 (22.07.1999) *Page 5*	1,3-6
A	US 2005256202 A1 (Kim et al.) 17 November 2005 (17.11.2005) *Whole document*	1,3-6
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search 14 September 2011 (14.09.2011)		Date of mailing of the international search report 22 September 2011 (22.09.2011)
Name and mailing address of the ISA/ AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24 / 535		Authorized officer GÖRNER W. Telephone No. +43 / 1 / 534 24 / 558

Continuation of first sheet

Continuation 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:

Claims Nos.: 2 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:

Claim 2 is unclear due to a lack of compliance with PCT Rule 6.2, relying in respect of the technical features of the invention on reference to figures or description, and therefore had to be excluded from the search as well as the establishment for novelty, inventive step and industrial applicability.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/IN 2009/000034

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO A 9936404		JP A 2009102357	2009-05-14
		HK A1 1033458	2004-05-07
		HK A1 1033667	2003-01-24
		NO A 20003692	2000-07-19
		IL A 137384	2006-08-01
		BG A 104618	2001-02-28
US A 2005256202		IL A 178965	2011-05-31
		US A1 2011124689	2011-05-26
		AU A1 2010201538	2010-05-13
		US A1 2009203630	2009-08-13
		KR A 20070006935	2007-01-11
		NO A 20065441	2006-11-27