Abstract:


INVENTORS: Jayachandra, Sureshbabu; Mylan Laboratories Ltd, Plot No 564/A/22, Road No 92, Jubilee Hills, Hyderabad 500033 (IN).

Patent Classification: C07D 295/096 (2006.01)


Declarations under Rule 4.17:

— as to applicant’s entitlement to apply for and be granted a patent (Rule 4.17(i))
— as to the applicant’s entitlement to claim the priority of the earlier application (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))

Date of publication of the international search report: 29 September 2016

Title: PROCESSES FOR THE PREPARATION OF VORTIOXETINE HYDROBROMIDE

Abstract: The present invention relates to a process for the preparation of vortioxetine and its pharmaceutically acceptable salts.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07D295/096
ADD.

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 practicable, search terms used)

EPO-Internal, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>wo 2014/161976 Al (LEK PHARMACEUTICALS [SI] ) 9 October 2014 (2014-10-09) scheme la on page 14 example 5</td>
<td>1-29</td>
</tr>
</tbody>
</table>

* 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 application or patent 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

**A** document member of the same patent family

Date of the actual completion of the international search: 18 May 2016

Date of mailing of the international search report: 04/08/2016

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:
Beri l l o n, Laurent

Form PCT/ISA/210 (second sheet) (April 2005)
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).

This International Searching Authority found multiple inventions in this international application, as follows:

<table>
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<tr>
<th>Box No.</th>
<th>Observations where unity of invention is lacking (Continuation of item 3 of first sheet)</th>
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<td>see additional sheet</td>
</tr>
</tbody>
</table>

- **Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first 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.:** 1-29

**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.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-29
   
   Process for the preparation of vortioxetine using starting material VI

2. Claim: 30
   
   Process for the preparation of vortioxetine using starting material I and IV
<table>
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<th>Patent family member(s)</th>
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<tr>
<td>WO 2014161976 Al</td>
<td>09-10-2014</td>
<td>CN 105283442 A</td>
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