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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))

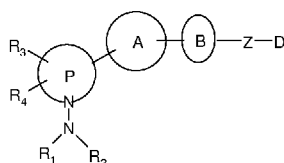
Published:

- 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))

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28 June 2018 (28.06.2018)

(54) Title: NOVEL HYDRAZINO COMPOUNDS AS BTK INHIBITORS



(57) Abstract: The present invention relates to novel hydrazino compounds of Formula (I) as Bruton tyrosine kinase inhibitors, process of preparation thereof, and to the use of the compounds in the preparation of pharmaceutical compositions for the therapeutic treatment of disorders involving mediation of Bruton tyrosine kinase in humans.



INTERNATIONAL SEARCH REPORT

International application No.

PCT / IN 2017/050048

| <p>A. CLASSIFICATION OF SUBJECT MATTER IPC: C07D 487/02 (2006.01) According to International Patent Classification (IPC) or to both national classification and IPC</p> | | |
|---|--|--|
| <p>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</p> | | |
| <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Wpi, Epodoc, STN</p> | | |
| <p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> | | |
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | WO 2014005217 A1 (PHARMASCIENCE INC) 09 January 2014 (09.01.2014) claims, table 1, examples | 1-3 (partially) |
| X | WO 2008039218 A2 (PHARMACYCLICS, INC, HONIGBERG, LEE, VERNER, ERIK, PAN, ZHENGYING) 03 April 2008 (03.04.2008) claims, examples | 1-3 (partially) |
| X | WO 2013177668 A1 (PHARMASCIENCE, INC) 05 December 2013 (05.12.2013) claims, examples, tables 2 and 3 | 1-3 (partially) |
| <p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.</p> | | |
| <p>* Special categories of cited documents:</p> <p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“E” earlier application or patent but published on or after the international filing date</p> <p>“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)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p> <p>“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</p> <p>“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</p> <p>“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</p> <p>“&” document member of the same patent family</p> | | |
| <p>Date of the actual completion of the international search 16 May 2018 (16.05.2018)</p> | | <p>Date of mailing of the international search report 23 May 2018 (23.05.2018)</p> |
| <p>Name and mailing address of the ISA/AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24-535</p> | | <p>Authorized officer GÖRNER W. Telephone No. +43 / 1 / 534 24-558</p> |

| Box No. II | Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet) |
|---|---|
| <p>This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:</p> | |
| <p>1. <input type="checkbox"/> Claims Nos.:</p> <p style="padding-left: 20px;">because they relate to subject matter not required to be searched by this Authority, namely:</p> | |
| <p>2. <input checked="" type="checkbox"/> Claims Nos.: 1-3 (all partially)</p> <p style="padding-left: 20px;">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:</p> | |
| <p>The scope of claims 1-3 comprises innumerable variations of compounds derived from countless combinations of residues according to the listed set of chemical residues and criteria by far exceeding the actual disclosure of the present application, which consists essentially of the compounds presented in Table 1 (description page 25), Table 2 (description page 39) and the examples (description page 28ff).</p> | |
| <p>Since the number of possible variations of compounds exceeds the number of structures reasonably searchable, the compounds actually searched had to be limited to those parts of claims 1-3 which concern compounds disclosed in Table 1 of the present application.</p> | |
| <p>3. <input type="checkbox"/> Claims Nos.:</p> <p style="padding-left: 20px;">because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).</p> | |
| Box No. III | Observations where unity of invention is lacking (Continuation of item 3 of first sheet) |
| <p>This International Searching Authority found multiple inventions in this international application, as follows:</p> | |
| <p>1. <input type="checkbox"/> As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.</p> | |
| <p>2. <input type="checkbox"/> As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.</p> | |
| <p>3. <input type="checkbox"/> 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.:</p> | |
| <p>4. <input type="checkbox"/> 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.:</p> | |
| <p>Remark on Protest</p> <p><input type="checkbox"/> The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> No protest accompanied the payment of additional search fees.</p> | |

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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International application No.

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